

# THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

Published every Thursday Morning by David Williams Co., 232-238 William St., New York.

Vol. 71: No. 15.

New York, Thursday, April 9, 1903.

\$5.00 a Year, including Postage.  
Single Copies, Ten Cents.

Reading Matter Contents.....	page 56
Alphabetical Index to Advertisers ..	171
Classified List of Advertisers.....	164
Advertising and Subscription Rates ..	69



**IRON AND STEEL**  
**REPUBLIC IRON & STEEL COMPANY**  
CHICAGO, ILL.  
**PRODUCTS**

**Bristol's Patent Steel Belt Lacing.**  
**SAVES**  
Time, Belts,  
Money.  
Greatest Strength  
With Least Metal

Send for Circulars and Free Samples.  
**THE BRISTOL CO., Waterbury, Conn.**

**SAMSON SPOT CORD**

Also Massachusetts and Phoenix  
Brands of Sash Cord.

**SAMSON CORDAGE WORKS, Boston, Mass.**

**TURNBUCKLES.**

Branch Office, 11 Broadway, New York.  
Cleveland City Forge and Iron Co., - Cleveland, O.



**BESSEMER PIG**

**PILLING & CRANE,**  
Girard Building, Phila.  
Farmers' Bank, Pittsb'g.  
Empire Bldg., New York.  
Board of Trade, Boston.

**APOLLO BEST BLOOM  
GALVANIZED IRON**

Every sheet ought to be perfect;  
if not, return it at jobber's expense.

The worker wants good iron as  
well as skill and good tools.

Apollo is right in a dozen ways  
where other galvanized irons are  
sometimes right and sometimes  
wrong.

American Sheet Steel Company, New York

**Remington**  
**HAMMERLESS SHOT GUN**

FOR \$25.00.



Guaranteed  
for Nitro Powders.

Grade K Made with Remington Blue-Steel Barrels.....\$25.00.  
Grade K E D. Made with Damascus Barrels and Automatic Ejector.....\$35.00.  
Send for handsome new Catalog, just issued, containing complete description of Guns, \$25.00 to \$750.00. Mailed free.

**REMINGTON ARMS CO.,**  
ILION, N. Y.

313-317 Broadway, New York. 86-88 First Street, San Francisco, Cal.  
Sold by all Gun Dealers. Not Retailled by the Manufacturers.

**CAHALL BOILERS** See Page 122.



REGULAR PATTERN.

**CAPEWELL HORSE NAILS**

NEW YORK,  
PHILADELPHIA,  
CHICAGO,  
ST. LOUIS,  
BOSTON,

Branches:

DETROIT,  
CINCINNATI,  
SAN FRANCISCO,

PORTLAND, ORE.,  
BUFFALO,  
BALTIMORE,  
NEW ORLEANS,  
DENVER.

**THE CAPEWELL HORSE NAIL COMPANY**  
HARTFORD, CONN.

PLATE PATTERN.

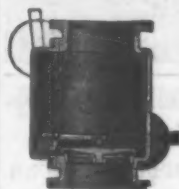


REGULAR PATTERN.



CORRUGATED PATTERN.

**Excelsior Straight-Way Back Pressure Valve.**



This valve has no dash pots, springs, guides or complicated levers to get out of order. It is simple, reliable and well made. Never sticks, and can be relied upon at all times when using exhaust steam for heating; or when used as a relief, or free exhaust on a condensing plant, it has no equal. It is noiseless and free from any complicated attachments.

JENKINS BROTHERS, New York, Boston, Philadelphia, Chicago

**THE AMERICAN TUBE & STAMPING CO.,**  
HOT AND COLD ROLLED  
STRIP STEEL.  
Successor to  
**The WILMOT & HOBBS MFG. CO.**

SEE  
PAGE 23.



**MAGNOLIA METAL.**

Best Anti-Friction Metal for all Machinery Bearings.

Fac-Simile of Bar.  
Beware of  
imitations.

**MAGNOLIA METAL CO.,**

Owners and Sole Manufacturers, 511-513 West 13th St.,  
Chicago, Fisher Bldg. NEW YORK.



San Francisco, New Orleans, Montreal, Boston,  
Pittsburg and Philadelphia. We manufacture all  
grades of Babbitt Metals at competitive prices.

THE  
**ANSONIA BRASS**  
AND **COPPER CO.**  
MANUFACTURERS OF  
**BRASS AND COPPER**  
Seamless Tubes, Sheets, Rods and Wire.

SOLE MANUFACTURERS  
**Tobin Bronze**  
(TRADE-MARK REGISTERED.)

Condenser Plates, Pump Linings, Round,  
Square and Hexagon Bars, for Pump  
Piston Rods and Bolt Forgings.  
Seamless Tubes for Boilers  
and Condensers.

99 John Street, - - New York.

**Randolph-Clowes Co.,**

Main Office and Mill,  
**WATERBURY, CONN.**

MANUFACTURERS OF

**SHEET BRASS & COPPER.**

**BRAZED BRASS & COPPER  
TUBES.**

**SEAMLESS BRASS  
& COPPER TUBES  
TO 36 IN. DIAM.**

New York Office, 253 Broadway, Postal  
Telegraph Bldg., Room 715.  
Chicago Office, 602 Fisher Bldg.

**WATERBURY BRASS CO.**

ESTABLISHED 1845.

Main Office and Mills at Waterbury, Conn.

N. Y. Store, No. 122 to No. 130 Centre St.  
Providence Store, No. 131 Dorrance St.  
and No. 152 Eddy St.

**GERMAN SILVER**

IN SHEET, ROD AND WIRE  
for

**Key Stock  
Cutlery Metal  
Electrical Purposes  
Plated Ware**

also

**"Pope's Island White Metal"**

for like uses when extra drawing  
and spinning is required.

WRITE FOR SAMPLES.

**GENUINE No. 1 BABBITT.**

Handiest Metal you can  
use, as there is practically  
no shrink in it. Ever tried it?  
Saves in every way—Time,  
Money and Patience.

**GREATEST DURABILITY.**

Bridgeport Deoxidized Bronze  
and Metal Company,  
Bridgeport, Conn.

**THE PLUME & ATWOOD MFG. CO.,**

MANUFACTURERS OF

**Sheet and Roll Brass**

—AND—

**WIRE**

PRINTERS' BRASS, JEWELERS' METAL, GERMAN  
SILVER AND GILDING METAL, COPPER RIVETS  
AND BURRS.

Pins, Brass Butt Hinges, Jack Chain, Kere-  
sene Burners, Lamps, Lamp  
Trimnings, &c.

29 MURRAY ST., NEW YORK.

144 HIGH ST., BOSTON.

199 LAKE ST., CHICAGO.

ROLLING MILL:  
THOMASTON, CONN.

FACTORIES:  
WATERBURY, CONN.

**SCOVILL MFG. CO.,**

Manufacturers of

**BRASS,  
GERMAN SILVER**

Sheets, Rolls, Wire,  
Rods, Bolts and Tubes,  
Brass Shells, Cups, Hinges,  
Buttons, Lamp Goods.

SPECIAL BRASS GOODS TO ORDER  
Factories, WATERBURY, CONN.

DEPOTS:  
NEW YORK, CHICAGO, BOSTON.

**JOHN DAVOL & SONS,**

AGENTS FOR

Brooklyn Brass & Copper Co.,

DEALERS IN

**COPPER, TIN, SPELTER,  
LEAD, ANTIMONY.**

100 John Street, - - New York.

**Arthur T. Rutter**

SUCCESSOR TO

**WILLIAM S. FEARING**

256 Broadway, NEW YORK.

Small tubing in Brass, Copper,  
Steel, Aluminum, German Silver,  
&c. Sheet Brass, Copper and Ger-  
man Silver. Copper, Brass and  
German Silver Wire. Brazed and  
Seamless Brass and Copper Tube.  
Copper and Brass Rod.

**"PHONO-ELECTRIC"**

**WIRE.** "IT'S TOUGH."



**TROLLEY,  
TELEPHONE  
and  
TELEGRAPH  
LINES.**

Mills  
Bridgeport,  
Conn.

**BRIDGEPORT BRASS CO.,**  
19 Murray St., New York.



No better counter  
made.  
4 Wheel, \$3.00  
5 Wheel, \$3.25  
Guaranteed.

R. A. HART, BATTLE CREEK, MICH.

**Matthiessen & Hegeler Zinc Co.,**

LA SALLE, ILLINOIS.

**SMELTERS OF SPELTER**

AND MANUFACTURERS OF

**SHEET ZINC AND SULPHURIC ACID.**

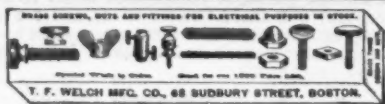
Special Sizes of Zinc cut to order. Rolled Battery Plates.  
Selected Plates for Etchers' and Lithographers' use.  
Selected Sheets for Paper and Card Makers' use.  
Stove and Washboard Blanks.

**ZINCS FOR LECLANCHE BATTERY.**

**BRASS FOUNDERS  
FINISHERS J.J. RYAN & CO.**

68-74 West Monroe St., Chicago.

Best Bronze, Babbitt Metals, Brass and Aluminum CASTINGS  
On Short Notice.



**BRASS, BRONZE and ALUMINUM CASTINGS.**

Founders, Finishers.

W. G. ROWELL & CO., BRIDGEPORT, CONN.

**HENDRICKS BROTHERS**

PROPRIETORS OF THE

**Belleville Copper Rolling Mills,**

MANUFACTURERS OF  
**Braziers' Bolt and Sheathing**

**COPPER,  
COPPER WIRE AND RIVETS.**

Importers and Dealers in

Ingot Copper, Block Tin, Spelter, Lead, Antimony, etc.  
49 CLIFF ST., NEW YORK.



# THE IRON AGE

THURSDAY, APRIL 9, 1903.

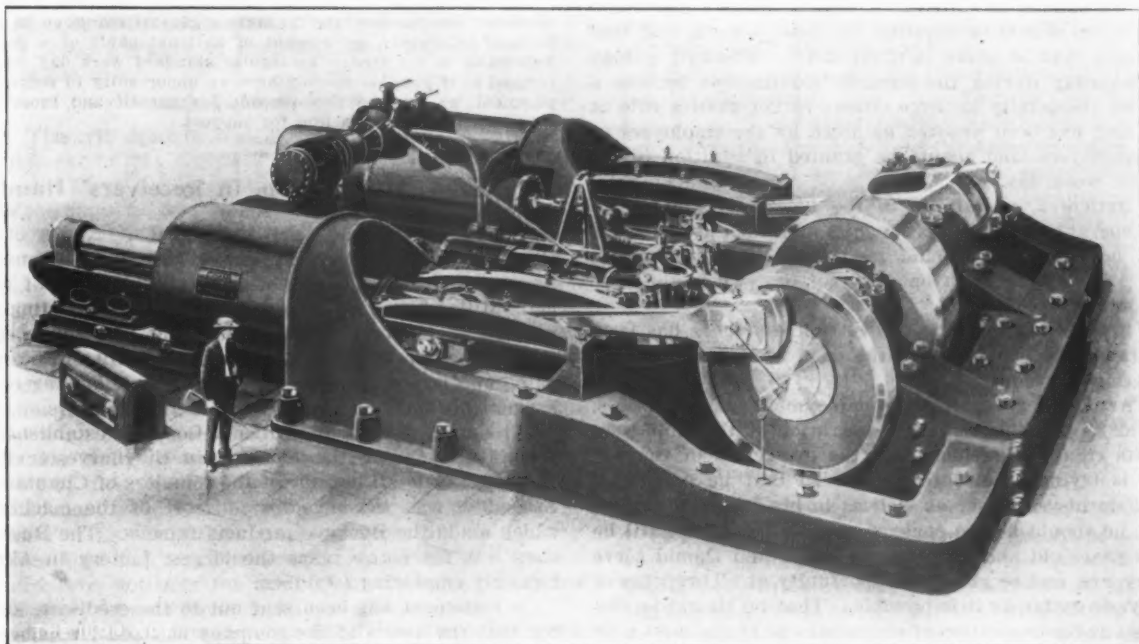
## The Mesta Reversing Engines for Blooming Mill.

An important feature of the extensive improvements now being made by the Tennessee Coal, Iron & Railroad Company at their steel plant, at Ensley, Ala., is one of the largest reversing engines that was ever built, to drive their 44-inch blooming mill.

This engine was built by the Mesta Machine Company, Pittsburgh, Pa., and is here illustrated. The shaft of this engine is hollow forged, and with disk and balance wheel weighs 143,000 pounds, and required a special four-truck car to carry it. This is probably the heaviest load that was ever taken South over the railroads, and after reaching Cincinnati, over the Pennsylvania Railroad, the Q. & C. Railroad and the L. & N. Railroad refused to take it over their lines on account of the excessive weight.

strains on links and eccentrics, which are present when two eccentrics drive a link through offset connections.

The reversing is accomplished by means of a steam operating cylinder, whose piston rod is connected by a pair of links to the tumbling shaft. An oil check cylinder directly in line with the steam cylinder has its piston on the same rod. The valve which distributes steam to the operating cylinder and the valve which by-passes the oil in the check cylinder are on the same stem or valve rod. This rod is controlled through a floating lever by the operator's lever and the motion of the operating cylinder piston. The latter motion tends to move the valves to their central position and so bring the operating piston to rest. The motion of the operator's lever has the opposite effect. Thus the operating cylinder piston moves only as indicated by the motion of the operator's lever and is held rigidly in any position in which it is placed by the



THE MESTA REVERSING ENGINES FOR BLOOMING MILL.

It finally was taken over the B. & O., Southwest, Illinois Central and other roads to its destination.

Engines of this type are necessarily made very massive on account of the heavy work they have to do. The speed is high for such heavy engines, often reaching 200 revolutions per minute for a short period, and all moving parts must be made exceptionally strong and at the same time as light in weight as possible, on account of the high speed, thus requiring high grade forgings and use of steel castings instead of cast iron. The stationary parts, such as the main frames, &c., are made very massive, of cast iron.

The steam cylinders are 55 inches in diameter and 48 inches stroke. Piston valves are used to distribute the steam. They work in removable cast iron bushings and have adjustable packing rings. The steam enters the steam chest at the center and exhausts at the ends of the valve chamber. Branch exhaust pipes connect the ends of the valve chamber with exhaust pipes below the floor. The piston valves are operated by means of a reversing link motion. A triple eccentric is used to drive each link. The two outside sections have the same angular advance and are, in effect, one eccentric. They drive one end of the link. The middle section drives the other end of the link. The arrangement avoids all the side

oil check cylinder. The links are absolutely under the control of the operator, who can hold them without effort in any position. When brought to their central position they impart no motion to the main valves and the engine comes to rest. This feature furnishes a means of stopping the engine in case the throttle valve becomes deranged and cannot be closed. The engine can be operated cutting off at any part of the stroke. The valve stem connections, rocker arms and all other parts of the valve gear are substantially constructed, and, where practicable, are furnished with means of adjustment. All nonadjustable bearings have steel pins and bronze bushed eyes. An indicator is provided, by means of which the operator can observe from the pulpit the position of the links. The whole valve mechanism is supported on the tie piece between the bed plates.

This engine when operated under the usual every day conditions will attain, for short periods, a speed of 150 revolutions per minute and will develop upward of 16,000 horse-power.

The Pittsburgh Filter Mfg. Company of Pittsburgh, Pa., have been incorporated with a capital of \$150,000, and will take over the business of the company hitherto trading under the same name. Their offices have been re-

moved from the Empire Building to larger quarters in rooms 1501-1502 Farmers' Bank Building. The company have contracts on hand for installing their water softening and purifying plants at a large number of places throughout the country.

## The Machinists' Demands on Chicago Employers.

Lee S. Fisher and J. J. Keppler, business agents of District Lodge No. 8, International Association of Machinists, Chicago, have addressed the following communication to employers of machinists in that city:

"Inclosed on separate sheet, the members of the International Association of Machinists, by almost a unanimous vote cast in the last week of February, 1903, instructed their representatives to present to the various manufacturers employing machinists or machinists' apprentices, in Chicago and vicinity, that they desire and will endeavor to enforce, if necessary, by all lawful means at their command, to establish those conditions by which they may be employed as therein set forth, believing they are justly entitled to all, under present conditions, for the amount of product placed at the disposal of their employer from their labor.

"We believe, as stated in Article 1, that not more than nine hours should be required for a day's work, and that not more than 54 hours on night shifts. The half holiday on Saturday during the summer months has become a custom (especially in large cities) rather than a rule or law, and has been assisted as much by the employers as the employees, and should be granted in addition to the shorter work day.

"Article 2, pertaining to the increase, is based on the general condition of trade, and inasmuch as there has been no collective demand made in this vicinity since May 1, 1901, and not from the fact that we might have the power to enforce it.

"Article 3, pertaining to overtime, as there has been practically no opposition in the past, there should be no objection to it now.

"Article 4, governing the employment of apprentices, should receive the earnest co-operation of the employers for its rigid enforcement, for the protection of the boy that is trying to elevate himself so that he may be a credit to his employer as well as to his fellow workmen. That he should not be engaged as an apprentice until he is 16 years old and not after he is 21, and should serve four years, and be given an opportunity at all branches of the trade as far as it is possible. That he should be dismissed at the expiration of six months or at the most nine months, if in the judgment of the superintendent and the journeymen machinists' committee men he is not qualified to learn the trade, so that he may secure employment at some other trade or profession that he may be more proficient.

"Article 5 is based on the assumption that every man is entitled to an opportunity to earn enough to maintain himself and those that may be dependent upon him, if the co-operation between employer and employee can devise a way to obtain these results.

"We would ask that the conditions contained in statement be complied with on or before May 1, 1903. If a written agreement for one year or more is desired by the manufacturer, we are ready at all times to enter into one, based upon the conditions set forth in statement, with provision for arbitrating any differences that may arise, thereby preventing any strike or lockout until any differences have been thoroughly investigated."

The inclosure, to which reference is made above, is as follows:

We submit herewith a statement of conditions under which the machinists and machinists' apprentices desire to govern their employment, to be enforced on or before May 1, 1903.

1. That nine hours shall be the standard work day. All time worked over nine hours in any one day shall be considered overtime, except on night shifts, that not more than 54 hours shall be worked in the five nights—viz., Monday, Tuesday, Wednesday, Thursday and Friday. (This association has no objection if a further reduction of hours can be secured by mutual agreement between the employer and employees, to establish the half holiday on Saturdays during the summer months.)

2. *Wage Scale.*—That not later than May 1, 1903, machinists, die and tool makers shall receive a 5 per cent. increase over and above the rate paid January 1, 1903. And such additional amount to those that would still receive less than 30 cents per hour and 35 cents per hour for die and tool makers, except outside men, who are to receive 50 cents per hour, eight hours to constitute a day's work for all outside work.

3. *Overtime.*—Time and one-half to be paid for all time to be worked over the regular day schedule up to 12 o'clock midnight. After 12 o'clock, Sundays and legal holidays—viz., New Year's Day, Washington's Birthday, Memorial Day, July 4, Labor Day, Thanksgiving Day and Christmas Day, to be paid at the rate of double time, except on the company's own repairs of its machinery, so that the factory may be in running order the following day, for which time and one-half is to be paid.

4. *Apprentices.*—One apprentice may be employed for the shop, irrespective of the number of machinists employed, and one to every five machinists thereafter. This is to apply to day force only, as apprentices are not to be employed on night shifts. If overtime is worked they are to receive time and one-half or double time as applied to journeymen. The minimum rate for apprentices per hour to be:

	Cents.
First six months.....	8
Six months to one year.....	10
One year to one year six months.....	12½
One year six months to two years.....	15
Two years to two years six months.....	17½
Two years six months to three years.....	20
Three years to three years six months.....	22½
Three years six months to four years.....	25

After which they are to receive at least the minimum journeymen's scale.

5. That should an occasion present itself whereby it will be necessary for the employer to make a general reduction in their force of employees, on account of national panic or a general depression in the trade, the regular standard work day may be reduced so if possible all may have an opportunity to secure employment, so that he may provide for himself and those that may be dependent upon him for support.

## Aultman, Miller & Co. in Receivers' Hands.

At Akron, Ohio, on April 5, Judge J. A. Kepler of the Court of Common Pleas appointed George W. Crouse of Akron and H. P. McIntosh of Cleveland receivers of Aultman, Miller & Co., manufacturers of Buckeye binding and mowing machinery. The appointment was made upon the application of Mr. Crouse, the president of the company, and was considered a protective one, looking to arrangements for an adjustment with the creditors.

The firm of Aultman, Miller & Co. were established in 1863, being among the pioneers in the harvester field. The late Lewis Miller, one of the founders of Chautauqua Assembly, was the inventor of most of the machinery which made the Buckeye products famous. The Buckeye shop was for many years the largest factory in Akron, formerly employing 1000 men.

A statement has been sent out to the creditors, showing that the assets of the company as fixed December 31 are \$1,751,650. This is \$134,000 short of the liabilities as they stood before that time. George W. Crouse, president of Aultman, Miller & Co., is personally liable on over \$1,500,000 of the indebtedness. The creditors are numerous banks, those of Chicago holding more of the paper than any other one city. One Chicago broker had placed more than \$500,000 of the notes.

The cause of the firm's trouble, Mr. Crouse is reported to have said, was ruinous business methods which competing companies for the last ten years have followed, sending an army of men over the country to sell machinery to any one who would buy, regardless of the purchaser's responsibility.

In a decision rendered in connection with the drawback on foreign pig iron on exports of reapers, binders, mowers and rakes manufactured by the Champion Division of the International Harvester Company, the Treasury Department says: In liquidation, the quantity of imported pig iron which may be taken as the basis for allowance of drawback may equal the quantity consumed as declared in the drawback entry, after official verification of exported kinds and sizes, provided that in no case shall it exceed for each kind of machine exported 66 2-3 per cent. of the net weight of the castings for the corresponding machine as shown in the manufacturer's sworn statement. To the weight of the imported iron so obtained may be added 5 per cent. thereof to compensate for loss in manufacture.



## Government Machinery Contracts.

### Efforts to Correct Faulty Practices.

WASHINGTON, D. C., April 7, 1903.—An effort is being made by certain prominent manufacturers of machinery to bring about a modification of the present practice of the departments, and especially of the Navy Department, in the purchase of costly machines of all kinds. The latest developments in this movement indicate that while legislation may be necessary to secure all of the desired results, yet it is within the discretion of the heads of departments to do a great deal to remedy the difficulties of which complaint is now made.

It is no secret that within the past two or three years the Government, and the Navy Department in particular, has acquired a considerable quantity of machinery purchased under the usual specifications by advertisement and proposal which has proved almost worthless and is now occupying valuable room in the various navy yards and naval stations, representing a large loss in money and in the efficiency of the various plants for repair and construction work. It is not alleged that the condition of affairs to-day is much worse than it has been for some time past, but the enlargement of machinery plants at several important naval yards authorized within the past three years has necessitated the purchase of unusually large quantities of machinery and the shortcomings of the present system of purchase have already been emphasized.

#### Inadequate Specifications.

The criticisms of the present policy of the Navy Department in this regard may be summarized under three heads: First, the preparation of inadequate specifications as the basis for bids upon machinery and especially costly machines which may or may not conform to standard types; second, the acceptance of low bids without careful inspection of the machines tendered and without regard to the relative superiority of other machines offered at somewhat higher prices; and, third, the failure of the Department to require manufacturers supplying inferior and inefficient machines to furnish and make good the same guarantees as would be required by a private manufacturing concern making similar purchases. It is very frankly stated in communications to the Department that some of the largest manufacturers of machinery have decided not to bid further upon Government contracts because of the conditions complained of, and it thus appears that the competition upon which the Government must rely, not only for the best goods but also for reasonable prices, is likely to be withdrawn.

Concerning inadequate specifications it is alleged that they are drafted, not with a view of securing the best machines that can be had, but rather with a view to describing a machine of average grade which can be furnished by any one of a considerable number of manufacturers. Such specifications, under the law as interpreted by the present Paymaster-General, shut out absolutely all manufacturers of high grade machines of the same general character, and thus the Government secures much machinery of a quality which would be rejected by a private manufacturer. The law in this case as construed by the Department is stated by the Paymaster-General as follows:

Under the law the lowest bid complying with the specifications under which an article is advertised must be accepted, and the bureau is therefore not at liberty to exercise the same discretion in placing contracts as is usual with private parties, although it may be shown at the time that by paying a higher price better machines could be secured.

Such being the interpretation of the law, it is urged with much force that, inasmuch as the Department fully controls the character of the specifications, they should be drawn with the utmost care and with a view to allowing contracts to be awarded to the manufacturers tendering the most desirable machines, both quality and price being considered. Several of the best known manufacturers in the country, it is asserted, do not build machines that can be sold within 25 or 30 per cent. of the cost of greatly inferior machines which nevertheless technically comply with the terms of the Department's specifications. It is entirely competent, however, for the

Department to provide in its advertisements for the purchase of superior machines, the condition that they shall be found upon inspection to be of sufficiently high quality to offset the difference in price.

#### Inspection of Machinery Suggested.

A very practical suggestion has been made to the Department with reference to the inspection of machinery to cost to exceed a certain fixed amount, say \$2500. Under the present system nearly all machinery is bought upon the basis of photographs and descriptions and is frequently accepted even when found not to be exactly what was desired. Little or no machinery is examined in advance of the awarding of contracts, and such inspection as is now required is intended only to prevent the Department, after it has awarded the contract, from being compelled to take a machine which does not meet the specifications. It is proposed as a remedy for this condition of affairs that whenever the Department receives proposals for a machine to cost more than the sum mentioned it should send from one to three of its experts to inspect all of the machines offered and report upon their relative efficiency in order that the Government may secure the best possible value within reasonable limits of price. It is contended that such an inspection would be made by any large private concern buying machinery on the basis of competition, and that under such a system the Government would rarely, if ever, find itself in possession of useless machinery purchased because the manufacturers submitted the lowest bid.

It is the position of the Department that it has no fund available with which to defray the cost of such inspection as is suggested, but the manufacturers meet this point with the assertion that the expense would be very small and would be gladly borne in every case by the successful competitor, provided the leading producers throughout the country could have a guarantee that their proposals would be carefully and intelligently examined and the awards made with reference to quality as well as price. Even should an act of Congress be required to authorize such a system of inspection as is proposed, it is contended that the necessary authority might easily be secured in connection with the annual Naval Appropriation bill, for it is believed Congress would promptly recognize the desirability of purchasing high grade machinery at a fair price in preference to that of an inferior quality at slightly less cost.

#### Manufacturers Should Be Held Accountable.

The suggestion that some method should be found for requiring manufacturers furnishing the Government with poorly designed, carelessly built machines to make good the loss incurred is offered not only on behalf of the public treasury, but also in the interest of all reputable manufacturers who are unable to meet such competition on a price basis. It is asserted in this connection that part at least of the fault lies with the officers who accept inferior machinery without careful examination and adequate testing, but it is also stated that under the present system the Government has no recourse should any machinery purchased be found, after technical acceptance, to be valueless because of flaws or inferior construction. Instances in which the Government within the past two or three years has purchased costly machines only to find them useless are cited in this correspondence, notably certain machinery for the League Island Navy Yard, costing several thousand dollars, which has been absolutely abandoned and the contractors not required to make good any part of the loss. It is notorious here that attempts have been made from time to time by dealers as well as manufacturers to induce the Government to buy machinery of inferior quality, some of which is said to have been built for private parties and rejected by them, but usually these attempts have failed because the machinery did not conform to specifications. Where there has been a technical compliance, however, the Government has awarded the contracts and pocketed the loss.

The present disposition of the Department officials having these matters in charge is to make no important departure in the methods now in force. This is usually the case with reference to necessary reforms, especially where the change proposed, if adopted, might be regarded

as a reflection upon officials of the Department. Leading manufacturers, however, are very anxious that a change should be made and are likely to take the matter up not only with the Department heads, but if necessary with the Congressional leaders having charge of the annual appropriation bills.

W. L. C.

## Catalogue Suggestions.

• BY ALBERT STRITMATTER.

In the machinery world the catalogue is an important factor in the distribution of the factory's product. This applies no matter by what means the machinery or other products are sold—i. e., whether the goods are sold through the medium of the catalogue alone or in conjunction with dealers, traveling representatives, &c. This being the case, it is hard to understand why some manufacturers and jobbers get out a catalogue at all, for their efforts in this line certainly are not at all attractive.

In order to get an idea of the enormous amount of money which is wasted in catalogues just recall, if you can, the number of catalogues you have received in the past six months, and then try and bring to mind those which have impressed you as particularly attractive or offering any inducement to give your business to the senders of the catalogue.

In order to get the most impressive effect of the diversity in the appearance of catalogues, take all those you can secure from the manufacturers of any one line of machines. For instance, take all the steam engine catalogues, or all the gas engine or pump catalogues, and compare them. That this is the best way in which to judge of one's own catalogue is proven by the fact that the prospective purchaser of any piece of machinery has all of these catalogues before him. Of what value is it, except incidentally, to compare your pump catalogue with that of a gas engine manufacturer? You are trying to impress favorably the purchaser of machinery you manufacture, and your catalogue will be compared, consciously or unconsciously, with those of your direct competitors.

When you have all of these catalogues before you, note the differences in their general appearance. Here is one with a cheap cover of unattractive color and quality. If you happened to come up to a table on which these various catalogues were spread you would certainly not pick up that catalogue first, but this other one with a cover and cover design which show that the whole catalogue is likely to be attractive and interesting.

Then compare the quality of the paper used in the catalogue, the appearance of the type, the general make-up and presswork, &c. All these things at least unconsciously affect the prospective purchaser of machinery. A salesman once said to the writer: "Do you know, I hate to take out my firm's catalogue when I go to see a man. He generally has on his desk Jones & Co.'s catalogue, or that of Smith, Brown & Son, and you know they are real works of art. Now look at mine, would you? Why, it's a disgrace for a firm to compel its representatives to take such a thing as that out. Suppose I went out on the road dressed with the same general appearance as that catalogue. How much success do you suppose I would have?"

After the general attractiveness of a catalogue, and really of more importance than it, comes the quality of the reading matter. Many catalogue writers seem to feel that if they will only make their statements strong enough it will be all right, whether they are strictly true or not. They forget that the readers of catalogues do not always accept implicitly the truth of everything they read. If they did the truth would indeed be a strange contortion. For instance, how can we believe that one man's gas engine will use only half the fuel of all others when we read in the other catalogues that each has the lowest fuel consumption of any engine on the market? We should bear in mind, in writing our own catalogues, that they should be strong, but more than that—they should be convincing. This is the thing to be aimed at. And as an aid to this plenty of good, clear illustrations of the machines and their parts should be used.

In reading a number of catalogues recently the writer was impressed with the lack of clearness, and therefore

the lack of force, of certain catalogues as compared with others. For instance, in describing the governor of an engine one catalogue showed both a photograph and a diagram of this part of the engine, and described clearly its action. The other catalogues stated that the governor was simple and regulated closely. How much more convincing was the former than the latter method!

But, says the manufacturer, if I put everything like that in my catalogue my competitors would get the benefit of it all. In answer to this we can only say that if any manufacturer wants to know how your machine is constructed he will have no difficulty in finding it out so long as you are selling your machines. It is a well known fact that every manufacturer knows in a great degree the method of construction and operation of his competitor's machines, and if he does not his salesmen do.

The subject of errors in catalogues would in itself be sufficient for a long discussion. Of course there should be the utmost care taken to avoid typographical errors, but these are frequently of less importance than the other errors which actually occur. In one case a catalogue did not mention the name of the manufacturer of the machines it described except at one place, and that was at the head of a testimonial letter which was directed to the firm. This catalogue made something of the impression that would be made if a traveling man called on a customer and gave him a blank card and then entered into the discussion of his machine without mentioning who made it.

Still another catalogue, in presenting a statement of comparative costs, stated that if the manufacturer's engine were used instead of electric current from a city power plant, the operating cost per year would be \$4000 as compared with \$3000 for the city current. The advantage, from this statement, was with the city current. What was intended was \$400, instead of \$4000, as compared with \$3000, when the saving from the engine in question became apparent.

In another case it was said that an engine of a certain size would drive a certain number of "10,000 candle power arc lights." When we recall that even the ordinary 2000 candle power arc lights are only nominally of that candle power, and as a matter of fact are much less, we can see the absurdity of the statement made. It was evidently a typographical error for "2" instead of "10," but the catalogues went out without any correction.

In other cases statements are made as facts when they are merely the personal opinion of the writer and are disputed in actual practice. Such an instance is illustrated in the statement that "it has been proven that a horizontal engine is more economical than a vertical engine," and *vice versa*. One man's horizontal engine might be much more economical than some vertical, but another vertical engine might be even more economical.

Again, "we do not figure on pipe with any of our engines, for it is never furnished by anyone," is rather a ludicrous statement to make, for any manufacturer will furnish pipe with his engine if he is paid to do so.

Many of the oddities in the catalogue field exist from the fact that we are less likely to criticize our own children than we are those of other people, and errors which we would call ridiculous if in our competitors' printed matter we allow to remain in edition after edition of our own catalogues. It will do no harm, and it is likely to do a great deal of good, if we will occasionally follow the plan before suggested—of getting together and comparing with our own the catalogues of our direct competitors. Do not be more lenient with yourself than you are with your competitors, for the prospective customer will not be, and do not stop trying to improve your catalogue until yours is better than any of the others.

The production of Bessemer steel ingots in France in 1902 was 1,014,934 metric tons, as compared with 816,677 tons in 1901. The output of open hearth steel increased from 608,674 tons in 1901 to 620,366 tons in 1902. The total production of rolled Bessemer steel was 682,814 tons, of rolled open hearth steel 517,408 tons, of puddled and forged steel 12,041 tons, of blister steel 1004 tons, of crucible steel 12,715 tons and of rerolled scrap steel 5670 tons.



### The Globe Oblique Tumbling Barrel.

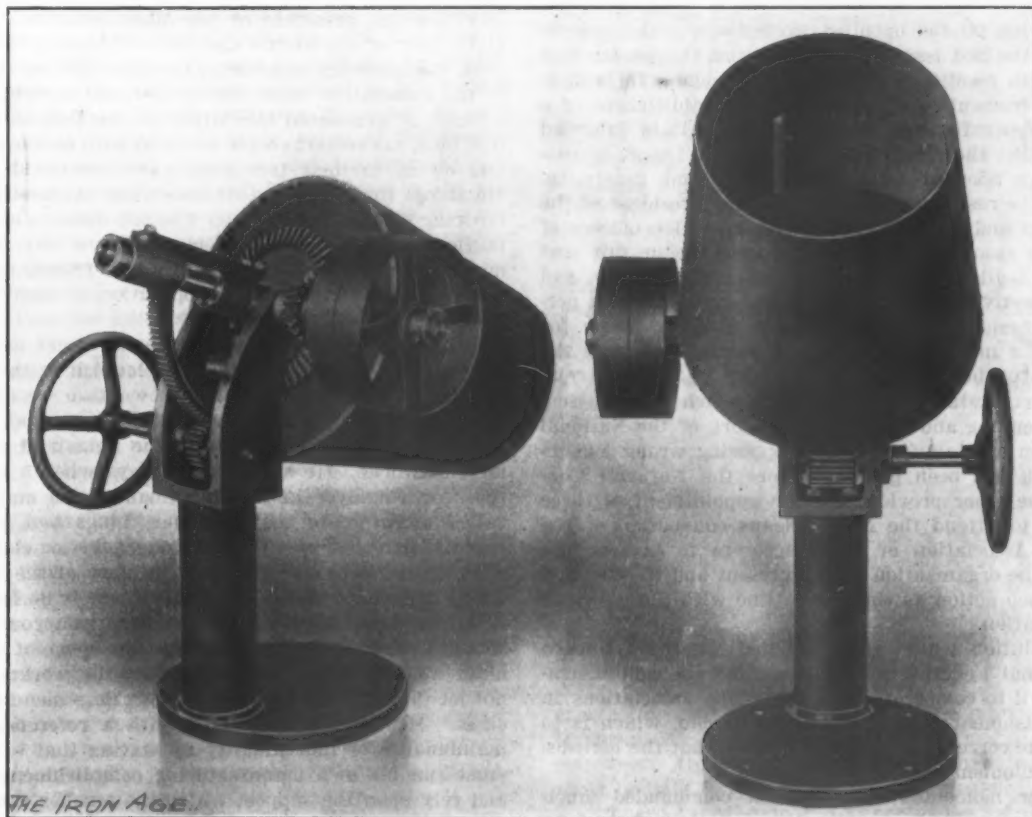
The accompanying half-tones show the new oblique tumbling barrels which have recently been placed on the market by the Globe Machine & Stamping Company, Cleveland, Ohio. These tilting tumblers will run in either position shown in the cuts or at any intermediate elevation. They are adapted for cleaning, brightening or polishing sheet metal stampings, small iron or brass castings, forgings, &c., giving a very fine finish to the work. They can be used for either wet or dry tumbling. The work can be seen while it is being tumbled, and samples of the parts in process of finishing may be taken out during the operation without stopping the machine and the finish inspected as the work progresses. A ratchet and pawl hold the barrel in any desired position, and by means of the hand wheel the elevation of the barrel may be adjusted to suit the requirements of

the Patent Office, should be used only to distinguish between different surfaces, textures or materials and rightly used is a great aid to proper illustration. A perspective drawing will often show more in a single view than two or three other figures, but such drawing should be made understandingly and not be a distortion of the subject, as too many of such attempts are.

3. A good drawing saves much description and time for the attorney, who, if he can trust his draftsman, can often turn the inventor or case over to him and not know its substance until the drawings are all done. Then when he gets ready to take up the case it will be much easier for him to grasp it with a good illustration before him.

4. It saves time and study for the examiner and thus favorably disposes him toward the case and expedites its progress toward issue.

Every case worth putting in the office, however simple, should be illustrated to the best advantage, as it not



THE GLOBE OBLIQUE TUMBLING BARREL.

the parts to be operated upon. Thus the most delicate stampings or castings may be finished without danger of distortion or breakage.

### Necessity for Good Patent Drawings.

A circular to inventors issued by Frank S. Blanchard, patent drawings, 1707 Marquette Building, Chicago, calls attention to the very great desirability of having good drawings accompany applications for patents before the United States Patent Office. Among the points he enumerates are the following:

In the old days of models there might have been some excuse for neglecting the drawing, but now it should have certain qualifications essentially necessary to its usefulness.

1. It should be a picture of the invention, so that it can be discovered, with a minimum of description, just what the inventor desires to show forth. Sometimes the simplest invention requires the best quality of illustration to bring out its difference from anything that has gone before and in what consists the improvement.

2. It should be dissected in such a way as will best show all its parts, their relation to each other and mode of action, and this should be done with the least possible number of figures and lines that will properly bring out the points. Surface shading, generally discouraged by

only draws attention to it more favorably but may help sell the patent, either before or after its issue.

Upon application of the creditors of the American Engineering Works and of Chas. E. Billin & Co., selling agents, Chicago, the Equitable Trust Company were appointed receivers for the American Engineering Works and the Royal Trust Company for Chas. E. Billin & Co. It developed, however, that the two receivers representing practically the same concerns could not agree, hence both receiving companies resigned. Subsequently the Equitable Trust Company were appointed receivers for both the American Engineering Works and Chas. E. Billin & Co. At a meeting of the creditors held March 30 at the Great Northern Hotel, Chicago, Mr. Caffeen of the Illinois Steel Company was elected chairman and Mr. Lang, secretary. At this meeting the Equitable Trust Company reported \$1250 orders on hand. It was therefore determined to run the manufacturing plant for one week. With the fulfilment of these orders it is probable that the court will appoint a trustee to take charge of the business.

Details of the production of rolled iron in France in 1902 show that of the total of 625,826 metric tons, 401,272 tons was puddled iron, 5580 tons was made of charcoal iron, and 218,974 tons was obtained from rerolling scrap.

# THE METAL TRADES ASSOCIATION.

## THE BUFFALO MEETING.

When the two days' session of the fifth annual convention of the National Metal Trades Association came to a close last Thursday at Buffalo, N. Y., one of the most important gatherings of employers ever held in this country was concluded. The meeting was remarkable, not only for the unanimity of opinion regarding the plan for action in the correction of evils attending present day trades unionism, but for the aggressive stand and fearlessness of action toward meeting and correcting these wrongs, which characterized the transactions.

Short as the assemblage may seem to have been, every moment of the time was devoted to hard work along the lines of a skillfully formulated and excellently executed plan.

Following on the opening proceedings, which we reported in the last issue of *The Iron Age*, the session was replete with results of considerable moment. In launching the movement looking toward the establishment of a national federation of employees, which it is intended shall parallel the American Federation of Labor, a resolution was adopted after enthusiastic and timely remarks. The resolution provides that the president of the association and commissioner invite executive officers of other like associations aiming to bring about fair and equitable dealings between employer and employee, and their respective freedom of employment, to form a permanent organization to serve as a clearing house for ideas and a means of obtaining concerted action in the attainment of the objects of such associations. In close relationship to this stand two resolutions which were passed, one commending and approving the work of the National Association of Manufacturers in opposing wrong legislation which has been pending before the National Congress. The other provided for the appointment of three delegates to attend the New Orleans convention of the National Association of Manufacturers to present the views of the organization they represent and to offer and further such action as shall be in line with the policy of the association.

A resolution which also indicated the trend toward the National Federation idea requested the administrative council to co-operate with other like associations in the establishment of an educational bureau, which is to disseminate correct information in order that the heresies of trade unionism may be controverted.

Another momentous topic which commanded much serious attention and prompt action was that of the boycott. Two significant resolutions voiced the sentiments of the convention on this subject. One indorses the formation of a national organization to resist the boycott by proper and legal means and to stimulate public aversion to it. The other recommends that when a member is placed under the ban of the boycott he be given preference over his competitors by other members of the association in making their purchases.

As a result of the gratifying reports in connection with the tendency of some nonunion employees to organize among themselves, a resolution was passed approving the organization of independent workmen and pledging the moral support of the association to such enterprises.

The convention decided to establish and foster local employment bureaus, and in addition to offering financial assistance to such movements voted to engage a corps of organizers to be at the services of the district chairmen, both for the purpose of working up the employment department and for the furtherance of the objects of the association in the various localities. The work of the employment bureaus is also to have in view a national federation or formation head, which shall at all times be kept informed as to the doings of employees in all parts of the country.

In definition of the position of employers in reference to making agreements with their employees, a resolution showed such a procedure to be permissible under the constitution of the association, so long as the embodiments of the "Declaration of Principles," which was adopted in New York June 18, 1901, be adhered to.

As a result of the reading of an interesting paper suggesting a uniform system relating to apprentices, a resolution was adopted instructing the Administrative Council to prepare a form of indenture or code governing the employment of apprentices.

### WEDNESDAY EVENING.

An informal smoker was tendered to the members of the association by the Manufacturers' Club of Buffalo in the rooms of the Ellicott Club, Ellicott square. Social intercourse was intermingled with the programme of the work of the convention on this occasion, as most interesting speeches were made. After an address of welcome by J. C. Larkin, president of the Manufacturers' Club, W. H. Pfahler of the Abram Cox Stove Company of Philadelphia, the honorary member of the Administrative Council of the association, made an enthusiastic speech. As Mr. Pfahler is considered the father of the Defense Association idea, his remarks were received with marked interest and owing to their true ring were applauded heartily. He stated that such associations were not hostile to the laboring men but to the men who led them. In this connection he stated that there is no reason why the workman should not be the employer's best friend, and dwelt upon the necessity of the co-operation of employer and employee.

He disavowed that the present movement among employers was a labor question, but placed it in the light of a readjustment of the units of work, a readjustment of methods. This readjustment is quite natural, he said, in view of the developments in the industrial and commercial world. He spoke of the days when a manufacturer or employer knew every man in his employ and called attention to the fact that things had grown so rapidly that the one was no longer in as close touch with the other as was necessary in view of the fact that one is dependent upon the other. There is no reason, he said, why the man who is dependent upon your success should not be interested in it. He then spoke of the minimum wage question by stating that the workmen must not let the 10 or 15 per cent. of worthless men brand the class. Mr. Pfahler concluded with a reference to the maintenance of individuality by stating that every man must run his own manufacturing establishment himself and rely upon the support which the number can give in a moral sense alone.

General Samuel M. Welch of the Sixty-fifth Regiment, N. G. N. Y., gave a stirring address upon the subject of "Militia." He concluded by urging employers to exercise more liberality with their men in connection with this question, saying "you manufacturers should not deter your men from joining the active militia, but should encourage them. In Buffalo some manufacturers, instead of placing obstacles in the way of their men in joining the National Guard, restore their places to them when they are called away and pay them one-half or full pay while they are absent on military duty. When a man in your employ is called out to perform a duty which he owes his country, society and yourself, see that he is welcomed back and thanked for the service he has done for the State." Commissioner Du Brul delivered some well chosen words upon the necessity for organization, which were enthusiastically received.

### THURSDAY MORNING.

Henry M. Leland of the Leland & Falconer Mfg. Company, Detroit, Mich., presented a paper on the subject of

#### The "Minimum Rate."

The enthusiastic trades unionist devotes much time to the consideration and discussion of the minimum rate. Excepting possibly the complete unionizing of his entire craft there is no other one theme that so commands and absorbs his time and thought. I want, with your kind permission, to look at this question for a few moments



from perhaps a somewhat broader standpoint than the one commonly followed in discussing the minimum rate.

May I explain at the start that, notwithstanding whatever may be said in this paper which may seem like criticism of trade unionism, it is not my purpose to antagonize nor to attempt to destroy these labor organizations, nor do I understand such to be the purpose of the National Metal Trades Association.

I desire above all things to have our wage earners prosper, because when labor is well paid and well employed there are a great army of consumers, who create an enormous demand, which keeps the wheels of commerce and of industry in constant motion; and the United States of America is the greatest and best market on earth largely because of the immense army of intelligent and high grade wage earners who are well paid and prosperous. To force them to lower wages and to a cheaper and lower scale of living would be unwise. The criticisms I shall make relate only to what in my humble opinion are their mistaken views of the best way to advance their own interests.

The thought of the originators of the minimum rate theory as applied to trades unionism was doubtless to establish the least rate of wages that should be paid to any tradesman or journeyman employed at his regular trade, and perhaps if this minimum rate could be kept low enough to measure the wage value of the poorest and most incompetent workman, and its influence and effect could be so restrained that it would not in any way affect the better and more competent men, then it would not, perhaps, be either objectionable or harmful to either the wage earner or the employer. Such, unhappily, is not the way the thing works out in actual practice. In many plants where the minimum rate is recognized and holds dominion it is the only rate, hence the minimum rate holds the anomalous position of a minimum and a maximum rate at one and the same time. In practice it is more a uniform rate than a minimum rate. This situation is unfortunate and unsatisfactory, both to the workman and to the employer, because nearly all plants have some men, and many plants have many men, who are superior in ability, in experience, in intelligence, in the spirit in which their work is done and in the results attained. These men are not satisfied with an arbitrary and unjust rate, which has been established without reference to the ability or results attained by the wage earners. The employers are not satisfied because they know that some, perhaps many, of their men are worth more than the amount being paid, but the unscrupulous minimum rate forces them against their better judgment and conscious sense of its inequity to pay a higher rate than they are worth to the poorest and most unsatisfactory men. These men are often the most ignorant, the most worthless, and have little conscience or care in regard to either the quality or quantity of their day's work, yet the inexorable minimum rate compels the employer to pay so many of these men more wages than they earn that he feels compelled to hold down the wages of the better men in order to keep the cost of his product within reasonable bounds. And thus the better man and better workman is forced by the inferior and poorer to take a much lower wage than would be gladly given him if the employer was not bound by this inconsistent and tyrannical minimum rate. Hence we must conclude that the minimum rate is a hardship and a burden, unjustly borne wherever it prevails, by the better portion of the wage earners. It is also unsatisfactory to the employer and often results in his paying a good man a lower rate than would otherwise be given him.

But this is not all. It has a most unfortunate and seriously demoralizing effect upon all wage earners who come under its influence, especially the most inferior and unworthy. The average workman does not need the influence that comes from a constant and never ending discussion of the minimum rate. This discussion blights his ambition to do his best and tends to make him apply the minimum principle to all his conduct, hence he soon drifts to the position where he works for and advocates not only the least wage, but the least work, the least results, and then he finally does, instead of his best, his poorest work. Note the contrast between these men and the men that have given the world an uplift and have

really helped to bring up their fellows to higher and better things. They have never in a single instance had a minimum anything for their incentive; but they have always had the extreme opposite of this for their incentive. "The maximum in every good thing," this has been their motto. With the word "maximum" on their banners, they have striven early and late, through storm and through fair weather, amidst difficulties and obstacles, they have known only that they must make the maximum effort, attain the maximum skill, the maximum efficiency, the maximum accomplishments, the maximum life, the maximum achievements.

The men who go into life with clear heads, strong bodies, honest hearts, and a determined purpose to do their best at all times, need no trades unions or other organizations to secure their rights.

To do the best you can or to exert the maximum effort is the gospel which I would preach in every shop and in every factory, in every lodge room, and upon every forum in our schools and in our magazines and newspapers. Let every man when he passes the doorway into the scene of his daily toil go there with a firm, a determined purpose that he will do his best; that his best thought, his best effort, his best achievement shall hold him that day. In doing this he will not only prosper himself, but he will do his full share toward producing more of the good things of life and reducing their cost so they may be more generally and freely used by all. President Eliot of Harvard University, I think, states the correct views in a recent speech, a brief extract from which I trust you will permit me to quote. He says: "A doctrine of labor unions which seems to me to fight against the true developing principles in human nature is the doctrine of the uniform wage. This uniform wage works in two ways; in the first place, it prevents the capable laborer from earning as much as he might, which is not only a misfortune to him, but a misfortune to society; and, secondly, it is cruel to the inferior workman. The labor union establishes a uniform wage at as high a level as it can, and in every trade there will be many workmen who really are incapable of earning that wage—that is, they cannot satisfy the employer in the unionized shop. He finds that he is paying some of his men a wage that they can earn, and others a wage that they cannot earn. How does he protect himself? He gets rid, whenever he can, of the laborer that cannot earn the wage named by the union. The consequence is that the inferior workman cannot earn in a year any adequate wage, since he is often unemployed. This is one of the greatest cruelties of labor unions. The inferior workman if permitted to work at lower wages might be steadily employed. He cannot be steadily employed when a wage must be paid to him which he cannot earn.

"There is, of course, another aspect of the uniform wage. In times of pressure, which occur frequently in all industries, many men are taken on at the union wage who cannot earn it, and the employer suffers very serious loss in the process. This, however, is a totally different aspect of the same false method. The union wage, in short, works badly in all directions. It is a discouragement to the capable workman, it is a cruelty toward the less capable, and from time to time inflicts great injury on the employer."

It becomes, it seems to me, of the most importance that the great organizations which are to control these mighty industrial systems should devise ways and means by which they can preach the gospel of truth to the masses of men, and teach them the real true facts about the proper relation of employer and employee; of the wrongs and inconsistencies of the trades unions, and guide and lead (not destroy) these unions into more equitable methods and better and nobler ways and means of doing things.

One of the papers which elicited the closest attention of the convention was presented by a prominent machine tool builder on the subject of

#### **Apprenticeship in the Machine Shop.**

In presenting this paper on the apprenticeship question I have borne in mind the fact that the conditions of to-day are entirely different to the conditions of ten years ago and prior to that date. At that time there were possibly 100 different forms of apprenticeship agreements be-

tween employers and apprentices. These old agreements were far from being uniform, which has resulted in a great deal of confusion, and I will endeavor to set forth what appears to be a suitable document for the conditions of to-day.

The employers of the United States should certainly know better what is necessary in education for the apprentice, in the different trades that make up the modern machine shop, such as drawing, pattern making, blacksmith work, machinists, specialists, handy men, &c., and I will endeavor to set forth as nearly as possible what appear to me to be suitable conditions under which to take apprentices and how to meet our necessities for specialists, handy men, &c.

The ideas advanced have been decided upon after careful consultation with superintendents and foremen, and with a view of enabling manufacturers to so arrange matters with newcomers into the business that they will receive suitable education for the work we intend them for, and at the same time provide a sufficient amount of first-class material to be able to hold our own for the highest grade of skill required in machine making. It is the opinion of all with whom I have consulted that the employer is much better qualified to arrange such matters, not only for the general benefit of the manufacturing business, but also for the best interests of the employees, and to so grade the various classes of skill required as to make it possible for the employers to conduct manufacturing institutions under the new conditions that exist, so as to enable them to hold their supremacy in this line of trade without being trammelled by conditions and rules gotten up by men who are not either well posted as to the necessities of our various businesses or in harmony with the idea of making the United States of America the greatest manufacturing country on the face of the globe. We are all aware that the entire machine making industry has undergone a most wonderful change, and particularly in the last five years, and the following ideas are presented with the intention to meet the present and future conditions as nearly as possible.

There is to-day a lesser need of the same large percentage of apprentices that are to be carried through all the departments of the business, and a greater need for specialists. There is also a greater necessity than ever before for educating the specialists and the handy men according to what their future shall be as assistants in manufacturing. It has been largely the practice heretofore to have more apprentices under verbal agreements than under written ones, because we have been unable to hold our apprentices. A contract does not bind them in law, and even if it did it becomes null and void because of their lack of responsibility. I have therefore decided to advocate dividing apprentices into several different grades, as follows:

#### GRADES OF APPRENTICES.

Grade No. 1. To be taught the branches of lathe work, vise work, planer work, gear cutting and milling.

Grade No. 2. Lathe work and vise work only.

Grade No. 3. Lathe work only, vise work only, planer work only.

Grades Nos. 4 and 5. The handy man and the specialist.

For Grade 1, clear through, no apprentice should be eligible before 17 years of age. He should serve four years, and his rate of pay for the first year should be 6 cents per hour, for the second year 8 cents per hour, for the third year 10 cents per hour and the fourth year 12 cents per hour.

Grade No. 2. Seventeen years, lathe and vise only. Term of apprenticeship three and a half years, three of it on lathe. Rate of pay for the first year  $7\frac{1}{2}$  cents per hour, for the second year  $9\frac{1}{2}$  cents per hour, for the third year  $11\frac{1}{2}$  cents per hour and the last six months  $13\frac{1}{2}$  cents per hour.

Grade No. 3. Seventeen years, lathe only, vise only, planer only. I would make the term of apprenticeship for this grade three years, and pay for the first year 10 cents per hour, for the second year 12 cents per hour, for the third year 14 cents per hour.

Grades Nos. 4 and 5. Handy man and specialist. I would make the term of service for this grade two years and require that the age should be not less than 19 years

and the rate of pay for the first year 10 cents, for the second year 12 cents per hour, on advancing laborers.

I am well aware that these prices are higher than we have heretofore been paying, but is it not a fact that many apprentices apply who are unable to pay board, because of the very low rate of pay offered, and will not a more liberal system of wages attract four or five times the amount of young men to the business as heretofore?

The low rate of pay has also resulted in many boys who were bright and brilliant fellows, and who would have done well at the business, being obliged to leave it for some such work as store work, portage or laboring, in order to get more money in cases where it was absolutely necessary that they provide for themselves, and while I have advocated the first grade at a lower rate of pay, this will result in obtaining apprentices who have good homes, good fathers and mothers, have received a good education and are able to continue the business until the full term of apprenticeship has been served.

I would also advocate that for Grade No. 1 a bonus be paid at the end of the term, additional to the price paid, of \$200; for Grade No. 2, \$150; for Grade No. 3, \$100, and for Grade No. 4 and No. 5, \$75.

In the drawing room no boy should be received under 17 years of age. His term of service should be four years. The first year, blue printing, rate of pay 10 cents per hour. The second year, tracing, rate of pay 12 cents per hour; six months' shop experience would be advisable at this point. The third year, detailing, rate of pay 14 cents per hour, and between the third and fourth years, designing, rate of pay 16 cents per hour.

In pattern shop work I would advocate that boys be taken not less than 17 years of age, term of service four years. The first year 10 cents per hour, and 2 cents additional for each of the three years following. These rates of pay will prove sufficiently attractive that our pattern shops and drawing rooms will be well filled and with good material, and at the right age at which they can give us sufficient service, and when the term of service is over they are 21 years of age and capable of doing a journeyman's work anywhere.

I would advocate that there be no set limit of apprentices, but that they be engaged so as to meet the requirements of the establishment that needs their service. Take for instance the drawing room, and suppose that 12 people are employed, six of them journeymen and six of them apprentices. It is very doubtful indeed whether the entire six apprentices will carry through their whole term of service, because in this department, unless a young man has the creative faculty he can never become a designer, and it would be better in this case that he be taken into the machine shop and a new apprentice put in his place. We are well aware that there are not over 2 per cent. of real "top notch" men in all trades. I mean by that, two men out of every 100 who become really first class. If you will look around you will see that we do not have more than two brilliant doctors in 100, or lawyers, or men in any of the professions, even business men, therefore we have no right to expect a much greater proportion than this from our drawing rooms, pattern rooms and machine shops.

I am aware that all our members will not agree with all the ideas herein set forth, but there is unquestionably a crying need for a more thorough education as all around machinists and more uniformity in the education of the handy men and the specialists. I also believe there is a necessity for a maximum rate being established for the specialist and the handy man, paying some per cent. less than we pay for a full fledged machinist. I think that under the conditions of to-day and the rapid specializing of our various machine making industries, the tool rooms of the future will be two or three times the size of the tool room of the past, and that each manufacturing establishment will find it necessary to establish what is known as a special department—a department in which all machines, attachments and new work that does not belong to the regular routine shall be carried through. This department in large factories will assume even greater proportions than the tool room, and in these two departments there is a splendid opportunity for the full education of the all around machinist.

When exceptionally bright and brilliant men are



found, either among the specialists or among the handy men, special provisions could be made in these cases to advance such men through the different departments so as to get the benefit of their ability. Heretofore there has been very little attempt at using the handy man in the pattern shop, but I believe in this department there is ample room for the handy man and the specialist. I believe we have not given sufficient attention to this department of our business, neither are we making use of many machines that are used in wood working shops, that could be well applied in the pattern making shop, and would advise our members to look into this quite seriously and to establish a department of handy men, such, for instance, as the repairing of patterns. We well know that a carpenter could take a broken or bruised pattern, cut out the bruised place, glue in a new piece and shape it up to the proper shape, and there is no necessity for having a man of high grade skill to do this. We are also well aware that a first-class handler of wood working machines could take work that has been laid out by a good pattern maker and machine it to a point ready for gluing up, and in a great many cases could even glue up the work.

As a result of this paper the following resolution was adopted:

*"Resolved, That our Administrative Council be instructed to prepare an apprenticeship indenture and code for regulating our attitude toward apprenticeships, and to transmit the results of their deliberations on this subject to each member."*

Later in the proceedings a suggestion was made that this work could be carried on as a preliminary step toward a national apprenticeship system.

James C. Hobart of the Triumph Electric & Ice Machine Company, Cincinnati, Ohio, read a paper which was abundantly fertile with food for thought and enthusiastic comment. It referred to

#### **Local Employment Departments.**

I want to disclaim any unfriendly attitude toward what are generally called the working classes; on the contrary, it would be my desire to assist in their elevation and in the betterment of the conditions of their employment, where abuses exist. My opposition to organized labor starts from the point where American citizens, under their constitution, are disregarded and trampled upon, where economic laws are set aside and class legislation demanded, where the socialist and demagogue assume to represent and stand for the free American artisan.

The subject is one that cannot be handled with gloves. The outrages perpetrated by organized labor are so gross as to demand the most vigorous treatment; the cancer gnawing at our vitals is not treated with salve, but with the surgeon's knife. The utter disregard of any law or of any individual rights has already created a disgust on the part of the conservative, patriotic citizen, be he employer or workman. Employers' associations and independent workmen's organizations opposed to such principles are springing up all over the country.

How direct this movement? How secure the greatest benefit and best results from the present change of public sentiment, which is yet uncertain and without leadership? This is the field for the employment departments, both local and national.

The situation is a delicate one. There is a natural tendency to place the employer on one side and the employee on the other. The employment department can largely form the connecting link and harmonize the two. It should be operated impartially in the interests of justice and right, and if so operated would demand and receive the support of public opinion.

In order to understand the relative position of the different elements and forces in the present industrial situation and see clearly just what field is open for the labor bureau, and what it could naturally be expected to accomplish, let us imagine ourselves transported on some Aladdin's magical carpet to a position giving us a bird's eye view of the whole industrial situation. Under such conditions I can imagine the situation would appear that of two great armies, organized labor on the one hand and organized employers on the other, and be-

tween the two contending forces a multitude of non-combatants, both employers and workmen, who had so far joined neither party. Although the noncombatants were affiliated with neither party, we would observe that their sympathies were largely with organized labor, and that they gave that side great assistance in all engagements between the two forces. Looking closer, it would be seen the reason for this lay in the fact that organized labor had assumed the right to represent all working classes, although numerically only a small fraction of them, and that the employers had done nothing to contradict that assumption. We would see that the employers had largely neglected any effort to convince the working classes that they had their interests at heart and were making any effort to better their conditions, whereas on the contrary organized labor, through the press and public speakers, insisted that that was their aim and object.

It would appear that the army of organized labor was splendidly officered and disciplined, and that it always adopted aggressive tactics. That its secret service, represented by organizers, agitators and walking delegates, was well organized, and that these officials left no stone unturned in their efforts to recruit their ranks from the multitude of noncombatants. No movement of the opposing army escaped the attention of these officers, and information thus obtained enabled their leaders to avoid a general action and by mobilizing their forces on unsupported outposts force engagements with inferior forces, in which tactics they were increasingly successful.

On the other hand, we would find the army of the employers apathetic, always on the defensive, without even the advantage of position which good generalship would naturally secure for such tactics. We would find this army divided into a host of small commands distrustful of each other, each with its own plan of campaign; we would see the secret service officials of the opposing force openly at work in the very ranks of the employers' army, unchallenged, unafraid, and would note their arrogance. We would note that the failure of the employers to mete out due punishment for flagrant acts of hostility and breaches of trust gave color to the public opinion that they were either in the wrong or were cowed by superior forces. We would see command after command capitulate and accept terms of surrender which robbed them of their rights as citizens, conferred by the Constitution of their country, or if not capitulating, yet signing articles of truce which, by recognizing one class of employee and not all, but removed previous barriers and gave the enemy the advantage of position which they had not before possessed.

We would see among noncombatants a large number of employers who by the nature of their attainments, their training and obligations should have cast their lot with the army of the employers and assisted them with their counsel and influence. That they had not done so should be a matter of grave concern to us, and we should make every attempt to so mold our policy that they would no longer withhold their allegiance.

The cause of the employers would seem hopeless indeed, and we cannot but wonder that the side which has had the least opportunity for education and mental development should still be so far superior in organization and discipline.

If the situation as described is the true one, and I believe it is, then the logical remedy is to organize as our opponents are organized, make the opposing forces more nearly equal, and industrial peace must result.

Many plans might be suggested by which this result could be accomplished; at present I am not aware of a single effort being made to focus the power and influence of the various employers' associations, as is the case with organized labor in the American Federation. Employment departments cannot by themselves accomplish this result, but that they can carry us far along the right road I hope to convince you. Having located the various forces in their proper relative positions, let us see what the department can be expected to do.

In the first place, you will acknowledge, to accomplish good and maintain discipline we must have the power to punish evil and enforce the rules of our organization.

and without it we have no claim to the respect of our opponents or support of our allies.

The objects of an employment department are:

To secure and tabulate information concerning the character, ability and previous record of every employee, and to furnish such information on request to any of our members.

To find employment for deserving men in the shops of our members.

To prevent undesirable characters from securing employment in the shops of our members, and to prevent apprentices breaking contracts.

It would hardly seem necessary to argue the advantages accruing to our members if these objects can be secured. Not one of us would think of selling a stranger without investigating his basis for credit, not only what he possessed in the way of property, equivalent if we are buying labor to the experience, knowledge and efficiency of the workman, but also as to his integrity, his reputation for honesty and reliability in his community. If this information is essential to us when dealing with strangers, how much more necessary is it when we contemplate taking a man into the bosom of our industrial family, placing him in our shops with our other men and trusting him with our reputation? Certainly no one can deny that such information would be valuable. Probably if a commercial organization, such as Dun or Bradstreet, were to formulate a similar proposition, they could secure a good fee for the service.

It is certainly a convenience to be able by telephoning our department to have men of good character sent us when needed. They may not always be as efficient as we desire, and we may have to try several before getting the right one, but we are much better off than if we had advertised in the usual way. Finding that the department can so serve us, we naturally make use of it, thereby increasing its influence.

From the workman's standpoint, it obviates the necessity of going from shop to shop, saves him car fare and time; he knows that if there is nothing against his character he can get a job any time he wants it by applying to the department, and he appreciates this fact and makes use of it. The department at the start is regarded with suspicion, but as soon as the workman is convinced that it is impartial, that it makes no distinction beyond demanding that the applicant's character be good and that he must be unemployed when making the application, and when he finds that, granted those conditions, it can and does find him employment, he indorses it and you have laid the foundation for winning the confidence of the employee and for a change of public opinion regarding employers' associations.

I alluded to the very efficient secret service of organized labor as represented by their organizers, agitators and walking delegates. In actual war the part of the spy is condemned, and the penalty exacted by all nations is death—the maximum human punishment.

The cheat and impostor is ostracized the world over, and how much better, tell me, is the man who while in your employment is seeking your injury, spreading discontent among other workmen, limiting your output, threatening your employees if they refuse to join his union? This man while receiving your pay has no intention of giving you the equivalent in honest labor, but the reverse. Why should such a man go unknown from shop to shop, "a tramp who comes and goes, leaving desolation and ruin in his path," masquerading under the title of a "deliverer of down trodden labor?" Expose him and his methods, and public opinion will make that man's position worse than that of any so-called "scab" about which he has so much to say.

The department should always stand for what is fair and just, and should set a high ideal; it should resist in every way attempts to cheapen the dignity or character of the skilled artisan and to do this should vigorously uphold the apprentice system. Without it we eventually lose our skilled artisans and the department could properly devise some method by which each member should turn out a certain number of apprentices every year.

Boys cannot too early be taught the importance of a contract. It is our moral duty to impress it on them, and

they should be compelled to complete their apprenticeship agreements. The union, on the contrary, advocates their breaking their contracts when they induce them to strike; this should be stopped and the department can stop it. We have several cases in which runaway apprentices have been induced by our secretary to return and complete their contracts.

#### EXPERIENCE AT CINCINNATI.

The report of the first Committee on Employment Department appointed by the Cincinnati Metal Trades Association contained the following clause: "We desire to state that it is our opinion that any action which could justly be construed as an infringement of the right of any workman to sell his labor for the highest price obtainable or as curtailing a workman's right to leave his employment and secure work elsewhere would be a mistake and would only result in failure." This report was written a year and a half ago, and I believe in no case has the department taken any such action. That it is today an absolute power for good in our organization cannot be disputed by any one who takes the trouble to carefully examine its work. One difficulty which was experienced at the start was to induce our members to list their employees and notify the secretary of applications and discharges. For a long time scarcely half our members did this, but as we secured names of workmen, some of our members found that the secretary was writing to their men that he had work for them and was finding them other positions. This arose, you will note, from the fact that one member had reported a man as leaving and another had failed to report his employment, the man's name therefore remaining in the unemployed list. Members were inclined to be indignant at first, but on having it pointed out that it was due to their own negligence they corrected the difficulty by sending in their reports promptly, and we now have every member reporting.

You will also note the inducement which this offers other firms to join our organization. A man's name must be either in the employed or unemployed list. He may be at work in the shop of some outsider, but so far as our records can go he is unemployed when he leaves a member's shop. As the sifting process continues the bureau will eventually have a list of all the best men and they will naturally be in the shops of our members. I am anxious to emphasize the importance of this feature. I have alluded to the large number of employers found in the ranks of the noncombatants, and it is strange that the majority do not seem to realize that organizations on the one side cannot be directed, opposed or controlled except by organization on the other. Our membership is a small proportion of the total number of manufacturers of this country, the majority being apparently willing to stand aside and permit us to work out our emancipation alone; when we have done so, however, it is fair to assume they will not refuse any benefits in the way of betterment of conditions we succeed in securing. In ordinary course of events it might require a long time for us to show the results demanded by these skeptics before they are willing to join. Besides this, when they find they are benefiting by our work without the necessity of joining hands with us it is possible this time may be indefinitely extended. Although a minority, yet because we are a unit we will necessarily legislate for all, and the outsider will reap a portion of the benefit of our work whether we or he will it or not. In addition to this the lack of his support delays the date upon which we would be able to show the results he demands before joining us.

Under the operation of an efficient employment department the sufficient reason is immediately provided. If he does not join he loses actual benefits in the way of securing competent men and he will soon find that the good men are drifting into shops run in connection with the department. This process will increase at a very rapid rate. The undesirable men drifting out are replaced by desirable men, and the good men left in outside shops will not long work with a "bum" element, and will be increasingly anxious to get into an association shop. You can readily see that here are the conditions for a rapid, healthy growth. It is to the interest of all members to report to the department and for nonmembers to be-



come members. It is to the interest of good workmen to get their names listed and to keep their "characters" clear, and they appreciate it.

Some objections were made at the start by our own members that we would antagonize the men, that they would feel that it was an effort to prevent their bettering their condition, in spite of our avowed purpose to avoid anything tending to give that impression. The result has proved them incorrect. Much of the time of our secretary is spent in talking to the men who call, and who, for various reasons, express themselves much more freely to him than they do to their own employer. This fact has resulted in bringing the attention of some of our members to abuses in their own shops of which they were ignorant and which were immediately corrected. In two recent cases members have been apprised by the bureau of the actions of certain foremen that were apt to cause trouble.

This suggests the possibility of making the department a means of discovering causes of complaint and dissatisfaction by making it a clearing house for suggestions regarding betterment of conditions on the part of the men themselves, the object being to show the men that they will not have to join a union in order to secure a hearing and redress for any wrong. We have not as yet taken any steps in this direction, but the possibilities of this branch of the subject are promising and deserving of careful consideration.

I have repeatedly been able to induce apprentices to return and finish their terms, although, unfortunately, owing to the fact that apprenticeship contracts are not uniform or even general, we are somewhat handicapped. We have the apprentice question under consideration now and will undoubtedly be able to stop the present practice of apprentices leaving before their term has expired.

The machinery to accomplish this is all very simple, the indispensable requirement being a good man, who will devote his whole time to it. We have three cards and four files in our office, and an application and discharge blank in the hands of our members. These blanks are made out immediately on hiring and discharging a man and mailed at once to the secretary. Application blanks are made out whether applicant is employed or not, and if not employed he is given the secretary's card which bears request to call on him. As these blanks are received by the secretary they are properly entered on his cards and files. A detailed description of the files is unnecessary here. We have the names of 6000 workmen on our cards. These are kept in a permanent file and bear any particular information regarding each man that we desire to keep. When unemployed the name also appears in file indexed alphabetically to specialty, such as lathe, planer, &c., enabling our secretary to immediately answer any demand for certain classes. Time will not permit of further description of the operation of the department, but any one interested can get full information by writing our secretary, A. C. Fisher, 1148 East Fourth street, Cincinnati, Ohio.

What I have said so far applies almost exclusively to a local department, and as the influence exerted must be primarily local, that is the first and most important development. Each local must be capable of controlling a local situation. No national organization can possibly do it unassisted. A national information bureau should be a clearing house for the locals; it should know which district was short of men, and which had a surplus, and should devise some means of equalizing the conditions by transferring men from one to the other. This would stop the present practice of one locality advertising in another which was already short of men. It should keep a list of all men who were given national cards, and these cards should only be given to men who were known to be faithful. It could gather a force of men which it could use as strike breakers, employ them by the year and charge each local or individual member with their services when needed. Such a force would enable us either to stop the present guerrilla tactics of the union, or at least to win in every case if such tactics were continued. Imagine for a moment the result of throwing fifty good men into any isolated shop struck by the union; it would practically decide the strike instantly, and, moreover, as

soon as it was known that we had the ability to do this strikes would not occur. The machinery of a national bureau would be very simple and its influence very great.

It has been decided by the convention of the National Metal Trades Association to start local departments in all principal centers. It cannot do this without the support of employers in those localities, but if what I have said has not convinced you of the benefit to be secured and the good to be accomplished both for the employers and their employees then I have signally failed in my purpose, and I hope you will attribute it to my logic and not to any defect in the plan itself.

The reading of this paper was followed with the greatest of interest. That the suggestions which it contains touched a responsive chord is evidenced by the prompt action which the convention took. The association went on record as recommending the establishment and fostering of local employment bureaus to be conducted by local associations. As such departments were found to give good results the association offered its members financial assistance to aid in the inauguration of bureaus in all sections of the country. In this connection the convention voted to foster the movement to the extent of rebating the amount of dues which the members shall be called upon to pay into such local employment bureaus up to the amount of 25 per cent. of their dues to the National Metal Trades Association. It was also voted to appoint a corps of organizers who are to go out into the field and establish locals and give whatever assistance is called for by the district committees. For the support of these organizers the association voted an ample monthly stipend for each.

#### The Boycott Question.

At various times throughout the session D. Davenport, who represented the Norwalk Iron Works Company of South Norwalk, Conn., and who has made a study of the boycott question, was called upon to offer his views on this subject. Mr. Davenport showed himself to be thoroughly cognizant of the ins and outs of this topic, and presented his views in masterly fashion, often bringing to his aid forceful illustrations. The convention showed itself to be awake to the necessity of meeting this question as it exists, and dealing with the boycotters on their own ground. The members embodied the pith of their sentiments in this respect in the following resolutions:

"Whereas, The boycott is cowardly and un-American, and has been stigmatized as immoral, cruel and anti-social by the Anthracite Coal Strike Commission, be it

"Resolved, That each member of this association in making purchases give boycotted firms the preference over all competitors until such boycott is declared off; and be it further

"Resolved, That our Administrative Council be instructed to enter into reciprocal agreements with as many other associations as will adopt similar resolutions and incorporate them in their proceedings.

"Whereas, The boycott as a weapon to coerce employers to discharge nonunion men, to surrender the management of their own business and to restrict their output has now become a very serious menace to the interests and fundamental rights of individual employers and employees as well as to the industrial prosperity of the country, and as the boycott is a distinct violation of the law of the land and the instances in which it is employed are innumerable, and the individuals so attacked are unable to combat it single handed; and

"Whereas, A combined effort on the part of all good citizens is sorely needed to educate the people of the United States to a realization of the extent to which the practice is carried as well as of its illegality and disastrous effects on their welfare and of its undermining of their constitutional rights; therefore, be it

"Resolved, That it is the sense of this association that a national organization should be formed to resist the boycott by proper and legal means, to assist in the enforcement of the laws against the same and to create a strong public sentiment against it; and that we further recommend to our individual members to co-operate in every way in such a movement."

### A National Organization.

There was a strong undercurrent throughout the proceedings of the entire convention aimed at the establishment of a national organization, to which the ideas and actions of the various associations of employers throughout the country should converge, and where such transactions should be collected and formed in concrete shape. Among many members the thought found expression that the National Association of Manufacturers would acceptably occupy this position. As it is not known whether or not this organization could see its way clear to assume this attitude, nothing definite could be accomplished as far as the relationship of this organization is concerned. The question, therefore, as to whether the National Association of Manufacturers shall finally act as the head of the united employers' movement, or whether another association composed of the executive officers of the auxiliary bodies shall be formed, was left open pending the convention of the National Association of Manufacturers at New Orleans, April 14 to 16. The National Metal Trades Association, however, in awaiting the sense of the New Orleans meeting and the consensus of opinion in other defense organizations, went on record with the following resolution:

*"Be it resolved,* That the president and commissioner are hereby instructed to invite the executive officers of such associations as may have for their object fair and equitable dealings between employer and employee and the preservation of their respective freedom of employment, to form a permanent organization which will tend to bring about the personal acquaintance of said officers and form a clearing house for ideas which may assist in the fulfillment of our organic principles."

So as to follow this matter, as well as other topics of importance to employers generally, at the New Orleans convention the association decided to send an official representative to the Southern city by passing the following:

*"Resolved,* That this association appoint three delegates to attend the annual convention of the National Association of Manufacturers, to be held in New Orleans April 14 to 16, 1903, whose duty it shall be to present the views of this organization and to present or further such resolutions as shall be in line with the policy of this association."

Another resolution bearing on this action is as follows:

*"Resolved,* That the National Metal Trades Association approves and heartily commends the successful work of the National Association of Manufacturers in opposing the nefarious legislation which has been pending before the National Congress."

J. W. Gardner of the Gardner Governor Company of Quincy, Ill., as chairman of the Finance Committee, submitted a very flattering report as to the condition of the association in this respect. It showed a surprisingly large cash fund in the treasury. Despite this handsome amount, which is at the disposal of the Administrative Council in furthering the objects of the association, a motion continuing the present rate of assessment was unanimously carried. Furthermore, in view of the value of such an asset, it was voted to increase this fund very materially by a special assessment, to which the members responded enthusiastically.

After a review of the movement among independent workmen in forming an organization excluding the objectionable features of trades unionism, F. B. Polson of the Polson Iron Works, Toronto, Ont., offered the following resolution, which was unanimously adopted:

*"Resolved,* That the National Metal Trades Association, in convention assembled, heartily approves the formation of organizations of independent workmen for the securing and maintaining of their rights under the Constitution of the United States, and pledges its moral support to such efforts."

Before the close of this session the following significant resolutions were passed and supplemented by many voluntary tributes testifying to the high esteem in which the officers of the association are held by the members:

*"Resolved,* That this association, in convention assembled, extend to E. F. Du Brul our thanks for his sacri-

fice of personal business interests in assuming the commissionership of this association, and that we wish to express our gratification with the manner in which he has served in this very important office, and that we pledge our fellow member commissioner our support in his faithful work.

*"Be it resolved,* That this association, in convention assembled, extend to N. B. Payne, our treasurer, the sincere thanks of this association for the very able manner in which he has performed the duties of this office."

G. F. Steedman of the Curtis & Co. Mfg. Company of St. Louis, Mo., proved a most efficient chairman throughout the convention, and he was also tendered a vote of thanks.

### THURSDAY AFTERNOON.

Wm. Lodge of the Lodge & Shipley Machine Tool Company, Cincinnati, embellished the report of M. H. Barker of the American Tool & Machine Company of Boston, Mass., chairman of the Nominating Committee, with many happy and well chosen remarks concerning the nominees, and the effectiveness of his introduction was shown by the unanimous election of the entire list, which was composed of the following:

#### The Officers.

President, S. W. Watkins, Christensen Engineering Company, Milwaukee, Wis.

First vice-president, H. N. Covell, Lidgerwood Mfg. Company, Brooklyn, N. Y.

Second vice-president, J. W. Gardner, the Gardner Governor Company, Quincy, Ill.

Treasurer, F. A. Geier, Cincinnati Milling Machine Company, Cincinnati, Ohio.

Councillors for one year: G. F. Steedman, Curtis & Co. Mfg. Company, St. Louis, Mo.; N. B. Payne, the Payne Company, Elmira, N. Y.; W. P. Eagan, Fred. W. Wolf Company, Chicago, Ill.; M. H. Barker, American Tool & Machine Company, Boston, Mass.

Councillors for two years: F. B. Polson, Polson Iron Works, Toronto, Can.; O. P. Briggs, Minneapolis Steel & Machinery Company, Minneapolis, Minn.; Carl Horix, the Geo. B. Bennett Company, Youngstown, Ohio; A. Falkenau, Falkenau-Sinclair Machine Company, Philadelphia, Pa.

Honorary: W. H. Pfahler, Abram Cox Stove Company, Philadelphia, Pa.

The Nominating Committee to serve for the next convention was named as follows: H. N. Covell, Lidgerwood Mfg. Company, Brooklyn, N. Y.; O. P. Briggs, Minneapolis Steel & Machinery Company, Minneapolis, Minn.; G. F. Steedman, Curtis & Co. Mfg. Company, St. Louis, Mo.

The appointment of a Legislative Committee was left to the Administrative Council.

George T. Bliss of the Erie City Engine Company, Erie, Pa., read a paper on the subject of hours. He took the stand that the limitation of the number of working hours was a limitation of production, which he held was a step backward. He spoke of the improved conditions existing in the shops of to-day offering the men more in the way of labor saving appliances than ever before and making work lighter than ever. He suggested that nowadays the helpers do all the heavy work and that they were not the ones who were crying for shorter hours, but the men who are the benefactors, as a result of the superior conditions of to-day. He said that members should take a stand against any reduction of the hours of labor.

The action taken by the convention on this subject was the passing of a resolution suggesting that as the matter of hours was a local question it should be solved in the separate localities according to the conditions existing in that particular place and with the co-operation of the Administrative Council.

S. L. G. Knox of the Bucyrus Company, South Milwaukee, Wis., offered the following resolution, which was adopted:

*"Resolved,* That the Administrative Council of this association is requested to establish in co-operation with other like associations an educational bureau under the management of broad minded men, which shall by publication, lectures and other advanced methods disseminate correct information in order that the heresies of trade unionism may be controverted and a lasting harmony between labor and capital be established."

Charles E. Hildreth of P. Blaisdell & Co., Worcester, Mass., presented an excellent paper urging personal effort



on the part of members in the direction of increasing their numbers.

W. B. Cowles, representing the Long Arm System Company of Cleveland, Ohio, read a paper upon the necessity of preventing the enactment of the injurious legislation which the labor leaders are constantly attempting to foist upon the American public.

Just before the adjournment, Wm. Lodge spoke of the benefits derived by the entire manufacturing community of Cincinnati from its excellent system of local organizations. He added that other cities would be benefited by following out the Cincinnati plan, and that all assistance would be gladly given to any one intending to investigate the subject.

In addition to those mentioned in the last issue of *The Iron Age*, the following members and guests were present:

Albert C. Fisher, secretary Cincinnati Metal Trades Association, Cincinnati, Ohio.  
H. D. Robinson, National Metal Trades Association, Cincinnati, Ohio.  
C. H. Bissell, the Trunk Line Association, New York City.  
R. W. Young, Weir & Craig Mfg. Company, Chicago, Ill.  
W. L. Gilson, Employers' Association, Elmira, N. Y.  
W. P. Dais, Rochester, N. Y.  
E. G. Patterson, Canadian General Electric Company, Peterboro, Ont.  
C. F. Wheaton, Dodge Mfg. Company, Toronto, Ont.  
Leroy A. Williamson, Bickford Drill & Tool Company, Cincinnati, Ohio.  
H. A. Francis, Francis Hook & Eye Fastener Company, Niagara Falls, N. Y.  
F. C. Olin, Olin Gas Engine Company, Buffalo, N. Y.  
M. F. Bowen, secretary Manufacturers' Club, Buffalo, N. Y.  
W. B. Morrison, McIntosh & Seymour Company, Auburn, N. Y.  
Edward D. Hooker, Iroquois Iron Works, Buffalo, N. Y.  
Wm. R. Perrin, Wm. R. Perrin Company, Chicago, Ill.  
W. H. Carpenter, Rahn-Mayer-Carpenter Company, Cincinnati, Ohio.  
Alonzo B. See, A. B. See Elevator Company, New York City.  
H. F. Devens, National Cash Register Company, Dayton, Ohio.  
John Jeffrey, Jeffrey Mfg. Company, Columbus, Ohio.  
John J. Whirl, Employers' Association, Detroit, Mich.  
J. P. Harrington, Erie, Pa.  
N. L. Candell, Barcolo & Boll Mfg. Company, Buffalo, N. Y.  
S. A. Johnson, the Lockwood Mfg. Company, Boston, Mass.

### Western Electric Company's Vast Improvements.

The Western Electric Company, Chicago, recently acquired by purchase from the Richmond Estate the property bounded on the north by West Twenty-second street, on the east by West Forty-fourth street court, on the south by the Chicago, Burlington & Quincy Railway and Ogden avenue, and on the west by South Forty-eighth avenue, containing a little less than 100 acres. The company also secured a tract of a little over 9 acres, northwest of this area, bounded by West Twenty-second street, South Forty-ninth avenue, West Twenty-third street and South Fiftieth avenue. This latter tract, of a little over 9 acres, while not necessary to the requirements of the Electric Company, was purchased as a necessity to secure the larger tract. Plans are now being prepared for the building of a new plant which it is estimated will cost between \$1,500,000 and \$2,000,000, exclusive of the equipment. Including the land and machinery, the expenditure will probably aggregate \$2,500,000, \$218,000 having been paid for the ground, which is at the rate of \$2000 per acre.

The location for the new plant is one of the most advantageous, from a manufacturing standpoint, in the city of Chicago, being on Ogden avenue, one of the best diagonal thoroughfares in the city, and having transportation facilities afforded by two railroads, the Chicago, Burlington & Quincy and the Chicago & Western Indiana Belt Line, the latter connecting with all the other railroads entering the city of Chicago. The new plant will be 6 miles southwest from the City Hall and about 5 miles west of the present factories of the company located on Van Buren, Clinton, Harrison and Jefferson streets.

The buildings, for which plans are being prepared, include a cable plant, 200 x 500 feet; a power house, 200 x 265 feet; a foundry, 400 x 475 feet; a machine shop, 150 x 820 feet; a pattern storage building, 52 x 250 feet; a water tower, 46 feet square; a fire department, 44 x 60 feet, and an office building, 52 x 262 feet. The company

contemplate utilizing the new plant for heavier manufacturing, such as generators and motors. With the exception of the cable plant, it is not the intention to abandon any of the buildings now utilized by the company on the west side, where \$3,000,000 is invested, and \$500,000 additional is being expended on the Polk street tract.

The cable factory, comprising a group of one-story buildings with an aggregate floor area of 150,000 square feet, will be built on the lot east of the Belt Line. Side tracks will be built on the east and west sides, it being the intention to assemble the raw material at the east end of the factory, the finished cable to leave at the west end. The equipment now used at the present cable plant on Polk street, near the south branch of the Chicago River, will be moved to the new factory, the property on Polk street to be utilized for warehouse and storage purposes.

The machine shop will consist of a main building, a bay on one side and gallery on the other, and will be equipped with one 50-foot and one 75-foot electric traveling crane commanding the entire length of the shop. The gallery of the machine shop is to be utilized for armature and coil winding, the wire being subsequently insulated at the cable factory. The power house will be equipped with a 4000 horse-power steam generating plant and connected with the various buildings by underground tunnels. All machinery will be motor driven and the various buildings will be heated by steam and lighted by electricity. All structures will be of steel and brick and will be fire proof. While the equipment of the power plant will be entirely new, it is anticipated that at least some of the machinery in equipping the foundry and machine shop will be transferred from the present west side factory. It is believed that about 1200 men will be given employment at the new works.

The Western Electric Company are also making preparations for the construction of an eight-story fire proof building at the northwest corner of Clinton and Congress streets, Chicago, plans for which have been completed by Samuel A. Treat, architect. Workmen are now engaged in removing a six-story building from the site of the proposed new building, which will have a frontage of 150 feet on Clinton street and 50 feet on Congress. This building will be of brick, stone and steel construction, the estimated cost being \$150,000. It is expected that the building will be completed within four months and will be utilized for light manufacturing, telephone department. The structural steel, which was purchased several months since, is now available and the contract for the new building has been awarded to the Falkenau Construction Company.

Portions of the foundry and machine shop at the west side plant, which will be vacated upon completion of the Ogden avenue works, will also be utilized for handling light castings and machine work. It seems probable that in the near future additional facilities will be provided for the arc lamp department.

Wm. R. Patterson, superintendent of the company, and under whose direction the improvements are being prepared, states that while the plans as here set forth have not been accepted officially by the directors and are subject to modification, it is probable that they will be carried out.

Fitchburg, Mass., furnishes an example of what labor troubles can do in preventing new manufacturing building. The D. M. Dillon Steam Boiler Works of that city had planned to erect and equip a modern machine shop this season. It was settled that this would be done, but the condition of the building trades in New England impelled the management to abandon the plan for this year. The Dillon Works are very busy, some of the recent orders being nine 400 horse-power boilers for the Arnold Print Works of Pawtucket, R. I.; two 150 horse-power boilers for the Putnam Machine Company of Fitchburg, Mass.; a 250 horse-power boiler for the Bath, Maine, Gas & Electric Light Company; two 250 horse-power boilers for the Crocker & Burbank Paper Company of Fitchburg, Mass.; four 150 horse-power boilers for Eaton, Dikeman & Co. of Lee, Mass.; one 250 horse-power boiler for the Morgan Paper Company; one 200 horse-power boiler for the Springfield Brewery Company of Springfield, Mass.

### The Duty on Muck Bars.

The Board of General Appraisers has rendered a decision on protests made by Moorhead Brothers & Co. against the decision of the surveyor of customs at Pittsburgh. The opinion is as follows:

The merchandise covered by these protests consists of certain iron, assessed for duty as "bar iron" at the rate of six-tenths of 1 cent per pound under paragraph 123, act of July 24, 1897, and claimed to be dutiable at the rate of three-tenths of 1 cent per pound under the provisions of paragraph 135 of said act, or at the rate of five-tenths of 1 cent per pound under the first proviso to paragraph 124 of said act as iron in slabs, blooms, loops, or other forms less finished than iron in bars and more advanced than pig iron.

The claim under paragraph 135 is untenable for the reason that that paragraph does not provide for iron, and the only provision therein calling for a duty of three-tenths of 1 cent per pound (which protestants claim) is

The firm state that they will aim to have on hand at all times a full equipment for machine shops, also a line of pneumatic tools, engines, hoisting machinery and rock drills. George W. Helmrich, formerly connected with the Aetna Iron Works of St. Louis, will represent them in the sales department.

### The Wood Universal Hydraulic Flanging Press.

The universal flanging press here shown is built by Wm. H. Wood of Media, Pa., somewhat after the type of those originally designed by the Tweddell Company of London. It will be seen that the vertical plungers of this press are placed in cylinders which are detachable from the main housing, as is also the case of the pull back plunger, which is on the top and worked with chains, forming a direct pull back for both cylinders. The main housing of the press is of box section, and is cast together with the base, which is 48 inches wide by

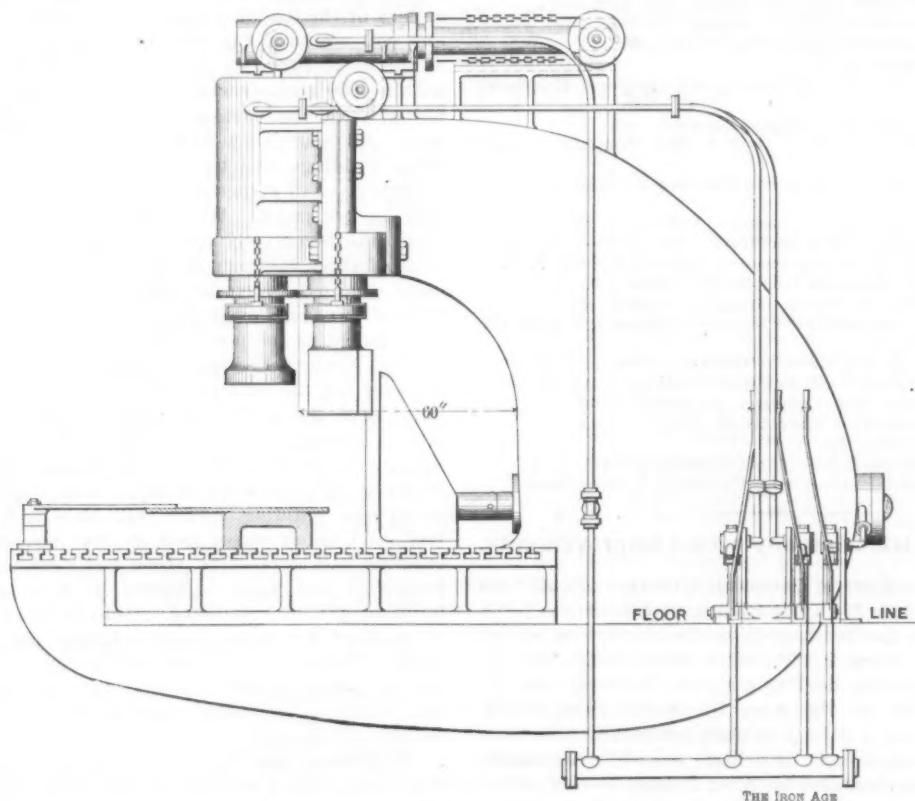


Fig. 1.—Sectional Flanging.

### THE WOOD UNIVERSAL HYDRAULIC FLANGING PRESS.

that for sheets and plates and steel in all forms and shapes not specially provided for.

The testimony and the affidavits show that the iron in question is of the kind known as muck bars, and that it is more advanced than pig iron. In the case of *A. Milne & Co. vs. United States* (not yet reported), acquiesced in by the Department in T. D. 23,756, the United States Circuit Court for the southern district of New York held, in the absence of proof to the contrary, that "bar iron" and "iron bars" meant the same thing in tariff nomenclature, and accordingly that iron in bars was dutiable as bar iron. In the present case there is likewise no testimony to show that any distinction between the two terms exists. It is not disputed that the iron is in bars, since all of the evidence is to the effect that it is known as muck bars, and, in accordance with the ruling of the court above referred to, it must be considered as bar iron. We accordingly hold that the assessment of duty was correct.

The protests are overruled and the decision of the surveyor affirmed.

The salesrooms and offices of Edgar A. Blenstok & Co. are now located at 322 Locust street, St. Louis, Mo.

9 inches long, and which allows ample room for flanging heads up to 7 inches in diameter. There is an extension bracket which bolts to the end of the base, so that the centering device for sectional flanging may be carried forward for extreme large diameters.

It will be noticed on the drawings that the horizontal plunger is placed inside the box housing and central with the base, and is worked by a differential area from the pull back, but it will be seen from Fig. 1 that one of the vertical plungers is fitted with a clamp for clamping the work to be flanged, and the other plunger with a breaking down plunger, which forms the section of a flange, while the horizontal plunger closes the work to make it square with the former.

It will also be observed from Fig. 2 that a cylinder is placed in the base of the bed, the plunger of which is used for clamping when flanging by complete formers; this cylinder performs an important part as it clamps the sheet, and keeps the head or whatever form is being flanged straight during the process of flanging with complete formers. When this plunger is not being used, the base is prepared to receive a cover plate which entirely covers it up, keeping it free from dirt while the machine is being used for sectional work.



The machine is of a very powerful type; the vertical plungers are 11½ inches in diameter, and the horizontal plunger is 6½ inches in diameter, and the clamping plunger in the base is 6½ inches in diameter. This improvement for clamping the work while flanging with complete formers will be recognized as important. As it is possible to keep the work straight, it is not necessary to handle it a second time for straightening, as was the case with the old Tweddell press.

### New England's Ultimate Dependence on Foreign Trade.

Former Assistant Secretary of the Treasury F. A. Vanderlip delivered an address before the Commercial Club of Boston last month in which he reviewed the rapid development of the American export trade and the reactionary tendency which has taken place more recently. Dealing more particularly with New England, he said:

the number of new enterprises, a settling of the population into a stationary condition, a slower development of new railroad facilities, a relative decline in wages, a level condition of bank deposits. Evidences such as those may be read as indicative of most important new influences. If they are read in connection with the statistics of heretofore undreamed of expansion in other localities, they may be taken as quite serious enough to command the best thoughts of such groups of men as compose this Commercial Club, but they do not necessarily foreshadow decadence unless you who make up this commercial life sit idly by. They must, it seems to me, arouse new initiative, demand greater energy and keener thought, an intelligent questioning as to what direction the new development shall take if the old lines have encountered insurmountable obstacles.

New England's bank capital is not increasing. Her bank deposits are taking slow steps forward, compared with the gigantic strides which the country elsewhere has shown. Your Stock Exchange shows no great evi-

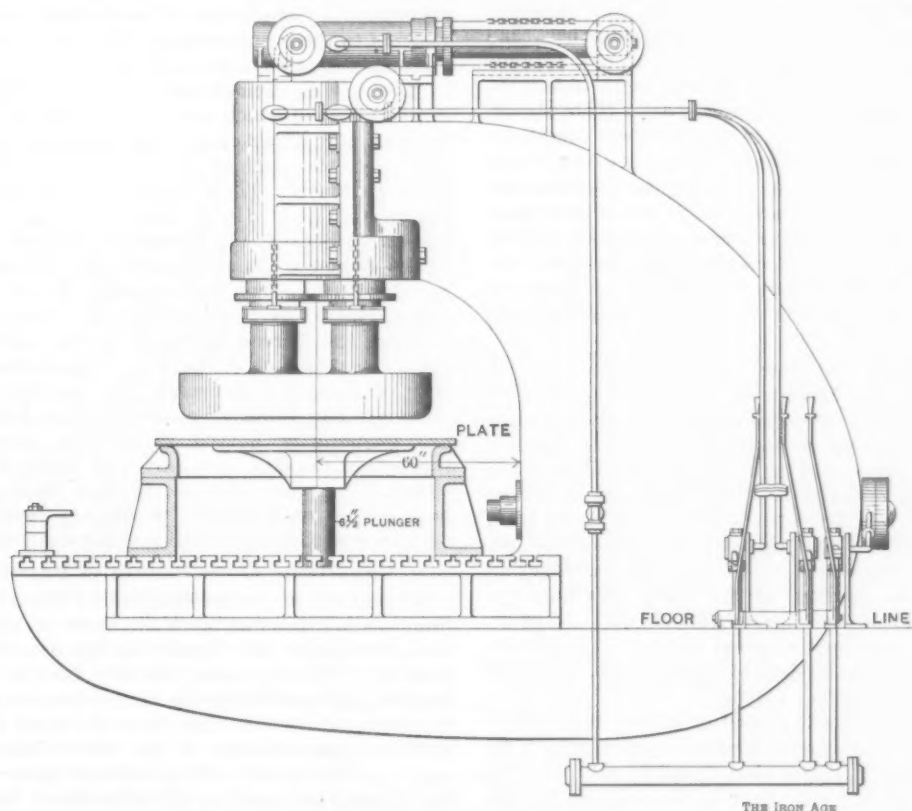


Fig. 2.—Circular Flanging.

THE WOOD UNIVERSAL HYDRAULIC FLANGING PRESS.

The industrial future of the United States certainly lies in the complete development of the resources of every State, not merely in agriculture, mining and lumber, but in manufacturing as well. And so, when we look at it properly, we can but approve of this development, which will realize dreams of industrial independence to many communities.

New England is deeply concerned in this change. It is impossible to conceive that her industries are to be permitted to decline, and still, if there is to be such radical modification of commercial and industrial lines, does it not inevitably point to the necessity for New England looking toward new fields? I do not for a moment believe that any tendency of our industrial development as a nation is going to result in industrial decadence in New England. Industrial civilizations which are rooted deep in the solid rock of established prestige, and which are fortified by a century's accumulation of technical and financial equipment, are not suddenly torn up and transplanted to new localities, even though those localities may be found more favorable for economical production. It is not with any sudden wrench that industrial supremacy passes from a State. There may be a gradual decrease in

dence of new corporate development within New England itself. New England capital is far more active in Southern cotton mills than it is at home. Other States, whose railway development was long since apparently complete, are spending hundreds of millions upon improvements and betterments, but New England railroad companies are doing comparatively little. Railway traffic here has increased less rapidly than in any other part of the country, and, finally, one of the most significant tests, the skilled American labor which has built up the manufacturing supremacy of New England is not maintaining its proportion to the population. The increase in the population of New England is largely an increase of the foreign born.

Such general indications as these may have less significance than appears to me. You can judge of them and know better what modifying influences and conditions should be taken into consideration, but it certainly is not an answer to say that New England has reached a stationary condition, has touched the limit of her commercial possibilities and that, while other localities are uncovering new resources and making vast development, New England industries should be expected only to pur-

sue the even tenor of their way, content to maintain the position which they have achieved, but bound within limitations of natural resources and conditions, which cannot be broken through. That attitude of mind would, perhaps, be comfortable, but I do not believe that it is tenable.

It is trite to say that neither State nor individual may stand still, that they must either go forward or backward. Trite as it is, however, it is particularly true in the fields of commerce and industry. When a locality no longer holds out attractive rewards to skilled industry, when there is no longer room for the newcomer, when a stationary condition has been reached, experience has abundantly proved that such a locality is in danger of decadence. The active emigrate, surplus capital is invested in other fields, the competitive advantages which long years of struggle have attained are not preserved—a community which has reached such a condition and rests content with what it has obtained, is ultimately in grave danger of being hurt by the competition of its more vigorous rivals.

Do not understand me as saying that New England stands in that position. I would not go farther than to suggest that some broad indications point to a possible approach to it, that market conditions have undergone radical changes—more radical, perhaps, in their significance than some of you who are close to local conditions here have fully realized. Conditions which have made the great industrial growth of New England possible are changing. Some of your advantages, I believe, are passing away. The markets upon whose contributions New England has thriven are declaring independence, and every one of these indications, it seems to me, points to the necessity for some new outlet for your manufactured products.

Such outlet is to be found in foreign markets. It seems to me that New England is so situated, geographically and industrially, and is so equipped in the temperament, ability and energy of its people, that it is the most natural thing to expect—indeed, it is the logical sequence of historical development—that the head and center of a great foreign trade development should be found here. I am firmly convinced that we have as a nation the elements which would enable us to establish ourselves in high position in the markets of the world. We have the raw material, and we have an unequalled genius of labor, and, of importance almost as great as these, we appreciate the value of organization, of combination, of doing things broadly and in great volume.

While our foreign trade record of two or three years ago, and, indeed, the record of to-day, is one of which we may well be proud, I believe that it marks only the first beginnings of what we may have in the way of foreign trade if we will seriously devote some of our best energies to it, if we will put into the work of establishing ourselves in the foreign markets some of the same energy, intelligence and genius which we have put into the development of our internal industrial affairs.

On the application of the United States District Attorney at Chicago, Judge Kohlsatt recently entered an order against the Indiana coal operators and individual parties to the arrangement of selling coal, restraining them from continuing sales under the contract. The restraining order will remain in force until the defendants have answered and the case has been argued. Depending upon the merits of the case, the court will then either dissolve the injunction or make it permanent. The defendants are given until May 4 to make answer. The attorney representing the coal operators is reported as saying that the defendants will probably file an answer and fight the issue.

A preliminary report on the cotton production of 1902 by W. M. Steuart, chief statistician for manufactures of the census office, shows the total number of commercial bales, including linters, to be 11,275,105, and equivalent bales of a 500-pound standard, including linters, to be 10,827,168. The crop of the previous year was 10,680,680 bales of 500-pound standard.

## The New Department of Commerce and Labor.

### Scope of the Department.

WASHINGTON, D. C., April 7, 1903.—The organization of the Department of Commerce and Labor is progressing rapidly, and Secretary Cortelyou announces that the entire clerical staff of the Secretary's office has been selected and that such additional appointments as may be necessary from time to time will be made through the medium of the Civil Service Commission. This announcement, however, is not intended to cover the selection of an Assistant Secretary or the chief of the Bureau of Manufactures, who have not yet been appointed, and it is also understood that the Civil Service Commission will not be called upon to furnish special examiners for the investigation of the so-called trusts, or commercial and manufacturing experts whose services may be required from time to time by the Bureau of Manufactures. Wide latitude is necessary, in the opinion of the Secretary, in the selection of specialists, and he takes the view as to these appointments that the office should seek the man rather than the man the office.

The new department will not be completely organized until July 1, on which date it will formally take over the bureaus now attached to other departments which, according to the original law, are to be transferred to the new department. These bureaus include the Light House Board, the Light House Establishment, the Steamboat Inspection Service, the Bureau of Navigation, the United States Shipping Commissioners, the National Bureau of Standards, the Coast and Geodetic Survey, the Commissioner-General of Immigration, the immigration service at large, the Bureau of Statistics, the Census Office, the Department of Labor, the Fish Commission and the Bureau of Foreign Commerce. The majority of these bureaus are now branches of the Treasury Department, but are temporarily housed in various private buildings throughout the city. On July 1 as many of them as possible will be removed to the Willard Building, which has been rented as quarters for the new department until such time as Congress shall provide a permanent home.

### Importance of the Bureau of Manufactures.

No feature of the development of the new department promises to attract so much attention among the business men throughout the country as the organization of the Bureau of Manufactures, not only because of its importance to the manufacturing trades, but because after the beginning of the new fiscal year the head of this bureau will have the direction of the entire United States consular service, which will be utilized under the terms of the organic act creating the department for the purpose of extending the American export trade. The functions of this bureau and the extent to which it will control the consular service are set out in Section 5 of the statute, as follows:

Section 5. That there shall be in the Department of Commerce and Labor a bureau, to be called the Bureau of Manufactures, and a chief of said bureau, who shall be appointed by the President, and who shall receive a salary of \$4000 per annum. There shall also be in said bureau such clerical assistants as may from time to time be authorized by Congress. It shall be the province and duty of said bureau, under the direction of the Secretary, to foster, promote and develop the various manufacturing industries of the United States, and markets for the same at home and abroad, domestic and foreign, by gathering, compiling, publishing and supplying all available and useful information concerning such industries and such markets, and by such other methods and means as may be prescribed by the Secretary or provided by law. And all consular officers of the United States, including consuls-general, consuls and commercial agents, are hereby required, and it is made a part of their duty, under the direction of the Secretary of State, to gather and compile, from time to time, useful and material information and statistics in respect to the subjects enumerated in section 3 of this act in the countries and places to which such consular officers are accredited, and to send under the direction of the Secretary of State, reports as often as required by the Secretary of Commerce and Labor of the information and statistics thus gathered and compiled, such reports to be transmitted through the State Department to the Secretary of the Department of Commerce and Labor.

While Secretary Cortelyou's plans concerning the work of the Bureau of Manufactures are yet in embryo, they will be worked out in detail before July 1, and



a number of interesting points have been determined. It is hoped to make the consular service far more valuable than ever before in exploiting trade opening abroad. Under the present system the consuls are permitted to take the initiative in the matter of making reports to the State Department except that they are called upon annually for a contribution to the "Commercial Relations of the United States," issued by the Department each year, and occasionally for replies to specific inquiries. These special reports, however, do not average more than three or four per annum, and, generally speaking, the consul is left to his own devices as to his topics and their treatment.

It is believed that this system can be materially modified to great advantage. It will be an important function of the Bureau of Manufactures to prepare schedules of inquiries to be forwarded to consular officers in various parts of the country designed to develop information of special interest to American manufacturers. These schedules will be based not only upon inquiries addressed to the department by business men, but also upon original investigations made by the Bureau of Manufactures in the discharge of the duty imposed by law "to foster, promote and develop the various manufacturing industries of the United States and markets for the same at home and abroad."

#### System of Consular Reports to Be Improved.

In this connection the new department is giving attention to a suggestion by Assistant Secretary Armstrong, in charge of customs matters in the Treasury Department, to improve the present system of forwarding consular reports on matters of importance to the business community. At present all reports concerning trade openings and other business opportunities are forwarded to the State Department through the mails and rarely reach the public within less than a month of the date of their preparation. Mr. Armstrong proposes that consuls shall be authorized to send to their respective consulates-general brief telegraphic dispatches concerning all important matters coming under their observation, and that the consuls-general shall be directed, in their discretion, to cable to the State Department the substance of such reports as are sufficiently interesting to justify the expense, which it is proposed to reduce to a minimum by employing a specially devised cable code. Under such a system a great deal of important information would reach the State Department on the day of transmission and would be promptly turned over to the Department of Commerce and Labor for promulgation. The cost of such a service would be very slight in proportion to its value and a large amount of information now worthless because of its antiquity would prove very useful.

In referring to this suggestion Mr. Armstrong points out that it is of very little value to an American manufacturer to learn on April 1 that if he had been in possession of certain information transmitted to the State Department on March 1, he might have sold a large bill of goods on March 15, but that in the mean time a British manufacturer has stepped in and filled the order. Our consuls, he says, are almost daily reporting opportunities for American manufacturers to sell iron pipe, steel rails, bridge material, &c., but such information being delayed a month or more cannot be utilized. Mr. Armstrong's plan would be of value also in keeping the Department of Commerce and Labor advised concerning market quotations on certain staples in leading European commercial centers, and this information would be useful to customs experts in determining the valuation of invoices of imported merchandise.

#### Appointment of Commercial Attaches Considered.

Another suggestion to which the officials of the new department are giving special attention is the appointment of commercial attaches to be assigned to United States embassies, legations and consulates abroad and to travel from place to place in quest of information of importance to American manufacturers and exporters. This system has been adopted by Germany with much success and was recently commented upon in a report by United States Deputy Consul-General Hanauer, at Frankfort-on-the-Main. Mr. Hanauer expresses the opinion that information furnished by consuls who are not experts in the subject matters reported upon "is in the main insuffi-

cient and sometimes unreliable and misleading," and he quotes *The Iron Age* in support of this view. He thinks that the consular service is very valuable as an agency for the development of foreign trade, but that detailed reports upon technical subjects are of much greater importance when compiled by experts. The officials of the new department are disposed to coincide with this view and to believe that a staff of commercial attaches would be of the greatest possible service in extending our foreign markets. Special legislation by Congress would be necessary, but a very thorough test of the system could be made at an annual expense of a few thousand dollars, which, it is believed, would be returned many fold by the development of export trade.

Secretary Cortelyou is availing himself of the visits to Washington of prominent manufacturers and leading business men from time to time to confer with them concerning the lines along which the new department is to be extended and is receiving many valuable suggestions. His purpose is to co-operate in every possible way with manufacturing interests, and as soon as the new Bureau of Manufactures is fully organized some interesting plans will probably be announced.

W. L. C.

#### The Wellman-Seaver-Morgan Company.

CLEVELAND, OHIO, April 4.—Official announcement was made to-day of the consolidation of the Wellman-Seaver-Morgan Engineering Company of this city and the Webster, Camp & Lane Company of Akron, Ohio. The consolidated company will be known as the Wellman-Seaver-Morgan Company and will have a capital stock of \$3,000,000. Officers of the new company have been chosen as follows: S. T. Wellman, president; John McGregor, chairman of the board; S. H. Pitkin, first vice-president; John W. Seaver, second vice-president; George H. Hulett, third vice-president; Charles H. Wellman, general manager; Thomas R. Morgan, secretary, and Albert D. Hatfield, treasurer.

The Wellman-Seaver-Morgan Engineering Company have been one of the most extensive engineering concerns in the country, and their specialties have been Bessemer and open hearth steel plants, rolling mills and machinery, metallurgical furnaces, steel buildings, ore and coal handling machinery, coke ovens, &c.

The Webster, Camp & Lane Company have been doing business along much the same lines and have made a specialty of hoisting and conveying machinery and mining machinery. Both companies had recently erected modern plants and the new company will continue to operate both plants. The one in Cleveland is to be known as the Wellman-Seaver-Morgan Engineering Division and the one at Akron as the Webster, Camp & Lane Division. Both plants are at present being operated up to their full capacity, and it is the plan to greatly enlarge them in the near future, and it is also announced that the scope of the business will be enlarged by taking up new lines of work.

The new company will control exclusively the Wellman patents relating to open hearth steel manufacture, and the Hulett patents for handling ore, coal and other material. As both companies have been doing much the same line of work it is figured that great economies can be effected by large and systematic production.

The Wellman-Seaver-Morgan Company control patents on machinery which will be used in all probability in the construction of the Panama Canal. While no contracts have been let for this machinery, it is stated that negotiations have been entered into by the United States Government, and it would not be surprising if a large per cent. of the machinery used in the enterprise would be built by the Cleveland company.

An official of the company is authority for the statement that in all probability \$1,000,000 will be required for the improvements contemplated for the two plants and that work will start as soon as possible.

Announcement is made that the Krupp Company of Essen, Germany, will expend \$5,000,000 in improvements, among which will be the erection of a rail mill on the American system. It will be located at Rheinfelden, on the Rhine.

### The Philadelphia Foundrymen's Association.

The regular one hundred and twenty-seventh meeting of the Philadelphia Foundrymen's Association was held at the Manufacturers' Club in that city, Wednesday evening, April 1. The president, Thomas Devlin, occupied the chair, and among those in attendance were the following:

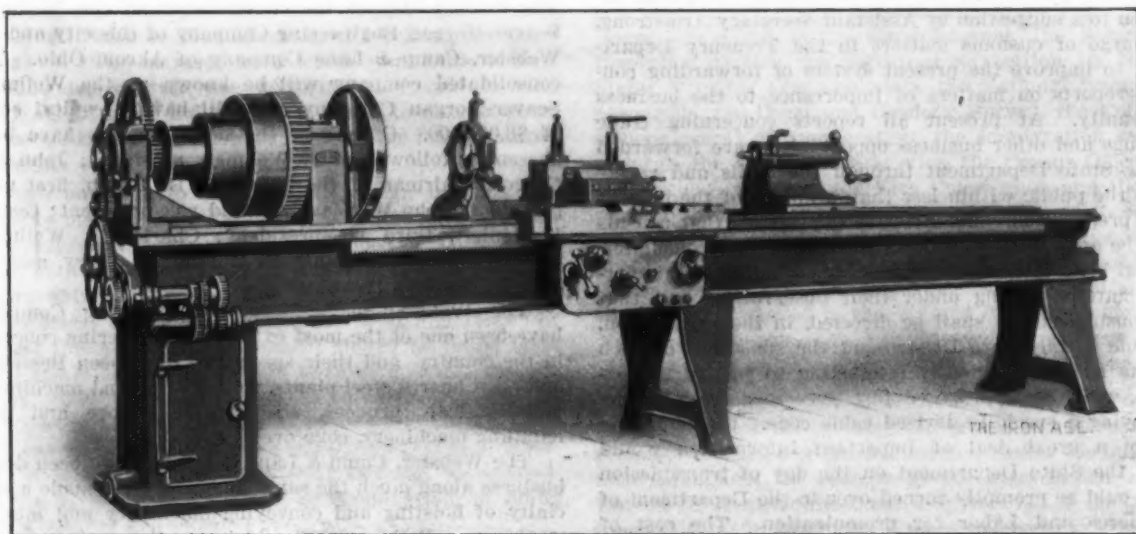
Thos. Devlin, Thos. Devlin Mfg. Company, Philadelphia.  
J. Thompson, J. Thompson & Co., Philadelphia.  
E. E. Brown, E. E. Brown & Son, Philadelphia.  
C. R. Brown, E. E. Brown & Son, Philadelphia.  
A. D. Wallace, E. E. Brown & Son, Philadelphia.  
W. J. Faux, Philadelphia.  
Thos. Furlow, Furlow Sanitary Brass Mfg. Company, Philadelphia.  
Jas. Furlow, Furlow Sanitary Brass Mfg. Company, Philadelphia.  
W. Robertson, Charlier Oil Melting Furnace Company, Philadelphia.  
A. A. Miller, *The Iron Age*, Philadelphia.  
Paul Van Fleet, Van Fleet & Freas, Philadelphia.  
E. Cooper Wills, Uniform Steel Company, Rahway, N. J.  
Thos. J. Kelley, Thomas, Roberts, Stevenson Company, Philadelphia.  
J. S. Hibbs, J. W. Paxson Company, Philadelphia.  
A. E. Outerbridge, Jr., Wm. Sellers & Co., Philadelphia.  
W. P. Cunningham, A. & P. Roberts Company, Philadelphia.  
Thos. Pole, Creswell & Waters Company, Philadelphia.  
T. B. Harkins, Harkins Foundry & Mach. Company, Bristol, Pa.  
Dr. Edward Kirk, Philadelphia.

The report of the treasurer, showing a balance of \$2101 on hand, with all bills paid, was read, and there being no other business before the association, the paper for the evening was announced, the subject being "The Schwartz Melting and Refining Furnace," by Edward H. Schwartz, Chicago, Ill. In Mr. Schwartz's absence the paper was read by Geo. C. Davis. It was illustrated by lantern slides.

There being no discussion on the subject, the programme was proceeded with, and portions of a paper entitled "Melting Steel with Cast Iron," by R. P. Cunningham, Holyoke, Mass., which was previously printed in these columns, was read, after which the meeting adjourned.

### The Fish Lathe for Self Hardening Steel.

The H. C. Fish Machine Works of Worcester, Mass., are building a new type of roughing lathe, designed to handle the new self hardening steels. It is especially designed for roughing out shafts and spindles up to 7 inches in diameter. The swing over the bed is 20 inches, and over carriage 12 inches. This lathe is built to any length between centers. The features of the tool are solidity and strength. The main bearing is 4 inches in diameter and 6½ inches long. The drive is from a two-



THE FISH LATHE FOR SELF HARDENING STEEL.

H. O. Evans, Thos. Devlin Mfg. Company, Philadelphia.  
W. H. Ridgway, C. Ridgway & Son Company, Coatesville, Pa.  
F. B. Gibbons, J. Wesley Pullman, Philadelphia.  
August Williams, Enterprise Mfg. Company, Philadelphia.  
J. Hy. Pepper, Philadelphia.  
H. L. Haldeman, Pulaski Iron Company, Philadelphia.  
Geo. C. Davis, chemist, Philadelphia.  
H. C. Matlack, Frank Samuel, Philadelphia.  
Andrew McClay, Bernstein Mfg. Company, Philadelphia.  
W. F. Bernstein, Jr., Bernstein Mfg. Company, Philadelphia.  
Jno. R. Lawrence, Jerome Keeley & Co., Philadelphia.  
F. Cooper Pullman, J. Wesley Pullman, Philadelphia.  
H. C. Mills, Schaum & Uhlinger, Philadelphia.  
A. G. Warren, J. W. Paxson Company, Philadelphia.  
Howard Evans, J. W. Paxson Company, Philadelphia.

President Devlin, after calling the meeting to order, announced in a few words the death of Thomas I. Rankin, the late president of the association, who died suddenly on March 22, from complications resulting from a surgical operation. Mr. Rankin was a man of high integrity, sterling worth and exemplary character, and his loss will be greatly felt by the association. Eulogistic remarks were also made by Josiah Thompson, W. H. Ridgway, Horace Evans and others, after which it was moved that a committee be appointed to prepare suitable resolutions of regret to be presented to the late Mr. Rankin's family and to his former employers, the Abram Cox Stove Company, and to be inscribed on the minutes of the association. The motion being unanimously passed, the president appointed the following committee: Josiah Thompson, O. J. Ward, Thos. J. Kelly, Howard Evans. They will report at the next meeting.

speed countershaft and a three-speed cone for a 4½-inch belt. The largest diameter of the cone is 15½ inches and the ratio of the back gearing is 15 to 1. The carriage is arranged for a double tool rest, as shown in the engraving, carrying as many tools as may be desired on either the front or the back carriage. The lathe has an arrangement for instantly doubling the feed by throwing in the second tool, which is accomplished by a sliding key in the nest of gears, at the head stock end beneath the pulley cone. The weight of the lathe on a 10-foot bed is 3000 pounds.

**The Largest Malleable Casting Plant.**—There appeared in *The Iron Age* for the 26th of February, 1903, an article describing the malleable casting works at Gelsenkirchen, in which it was stated that the works in question claimed to be the largest of its kind in the world. We, having great doubts as to the correctness of this claim, modified the title to "largest in Europe," and that our doubts were justified is now testified to by a high authority, namely, Dr. Richard Moldenke, whose name is familiar to our readers. Dr. Moldenke, writing to Herr Osann, the author of the German article from which our facts were taken, says that there are dozens of malleable foundries whose daily output far exceeds the modest 15 tons made at Gelsenkirchen. Further, that a foundry formerly managed by him made 80 tons a day, and that his recently started Pittsburgh works, now making 65 tons, will soon reach 100 tons.



## Lake Iron Ore Matters.

### Michigan Mineral Statistics.

DULUTH, MINN., April 4, 1903.—The State of Michigan has issued its annual report of mineral statistics, from the office of Tom A. Hanna, mineral commissioner. It is a volume of about 150 pages. One new feature of the report is its set of outline maps, showing the location of each mine, present or abandoned, on each range within the State. This is of interest, and was a work of no small labor. In the course of introductory remarks, the commissioner says:

"Not in many years has so much exploratory work been done, nor in so systematic and thorough manner. The old ways of exploring were not unlike scrambling, when compared with modern methods. Mining companies think nothing of spending many thousands of dollars in finding and proving up an ore body; shafts are sunk to the depth of 1000 feet or more to the ore, located by deep drillings. This is evidenced by the Hartford shaft of the Oliver Company and the Maas shaft of the Cleveland Cliffs at Negaunee. This great activity has resulted in the finding of a number of new mines, and more will be added in 1903. While there has been a great deal of exploring on the Marquette and Gogebic ranges, probably more has been done on the Menominee than in both the others. It is certain that this work will result in the discovery of new ore lenses, though it is probable they will be at a greater depth than formerly encountered. Fully 95 per cent. of the producing iron mines of the State are now owned by large corporations with furnace connections. The only notable exception to this rule is the firm of Corrigan, McKinney & Co., operating a chain of a dozen or more mines extending from the Menominee to the Mesaba. The Oliver Iron Mining Company, controlled by the United States Steel Corporation, mine about 50 per cent. of the ore of Michigan, and the Cleveland Cliffs Iron Company about 30 per cent. The remaining 20 per cent. is mined by the so-called independent producers."

This statement is not precise. The Cleveland Cliffs is an independent producer, in the common acceptance of that term, which is a producer whose main business is that of selling ore on the market. The proportion mined by the Oliver Company was 56 per cent., and of the remaining 15 per cent. most was by steel making and furnace concerns who were not independent producers. But to continue:

"Wages were never higher than now, and labor is contented. As evidence of this is the fact that among the 40,000 men employed in mines of iron, copper and coal, there has not been a single strike during the period covered by this report. The miners of Michigan are the best paid laborers in the world. Companies have been instrumental in the formation of miners' clubs for the benefit of their men. At the club of the Chapin mine the monthly dues are \$1.50. For this the member is entitled to medical service and medicine for himself and family, to \$2 for each day he is confined to his home by illness or accident, with 10 cents a day for each child under 16 years of age in his family. If his family contains six or more children, it will receive \$1600 in case of his death, and \$100 more for each additional child. A pension fund is provided for in addition. Every precaution is taken by the companies to secure the safety of their men, and their efforts are highly successful.

"The organization and operation of the United States Steel Corporation and other large corporations has been other than depressing, has had the effect of sustaining ore prices, &c. Certain it is that the advent of the Steel Corporation has proved beneficial to this State. They have given a stability to the iron mining business it never enjoyed before, and none of the evils that were so freely predicted at their advent have come to pass. What is here said of the Oliver Company applies with equal force to the Cleveland Cliffs, a concern far famed for the great generosity with which they treat their employees, and to other large corporations who now control more than 90 per cent. of the mines of the State."

### Ore Vessels Are Idle.

Navigation is open, docks at all ports on Lakes Superior and Michigan are full of ore, on several roads the tracks are lined with cars waiting to get to dock, but vessels are idle. Not a wheel has turned on account of a strike of the oilers and firemen. The Pittsburgh Steamship Company had closed contracts with their masters, engineers and some other employees for the season, but were not able to settle with oilers. Other vesselmen were not anxious to settle, and it is an open secret that most of them are much pleased with the tie up, and hope it may last a month. If it does, they expect to get a higher rate for ore and other bulk freight, and probably will.

### Activity Among Mining Companies.

The Cleveland Cliffs Company have commenced a shaft on what they will name their Austin, which lies in the Swanzy district, near Princeton mine. It is nearly to ledge, which lies 30 feet down. It is a three-compartment shaft, with two skiproads.

On the Gogebic range shipments from many mines have commenced. The ore dock of the Wisconsin Central is not yet ready for business, but will be finished shortly. Corrigan, McKinney & Co. are developing several old mines. At the Colby they are sinking the shaft, and are drifting at the fourth level, 600 feet down, and will open a fifth. About 100 tons of ore are being hoisted daily, which amount will be materially increased. At the old Iron-ton mine they are installing new machinery, and are hoisting some ore. The mine will make shipments this year. Its No. 3 shaft is going down, and at 350 feet a level will be opened. The shaft will continue downward to other levels. At the old Meteor mine, east of Sunday Lake, they are sinking and drifting and taking out some ore. The three will all make satisfactory shipments this year.

On the Felsh Mountain district, where G. A. St. Clair of Duluth has been working for a year or more, he has some very favorable showings. At the Northern, formerly the old Northwestern, he has sunk the shaft to 325 feet during the past winter. A body of Bessemer ore is shown up and, especially in the west end, the property is making a fine promise. A complete machinery plant has been installed and 50 men are at work. A contract has just been let for the driving of an old tunnel 300 feet further into the Columbia, to and under the old workings. The old shaft will be sunk an additional 100 feet, and the machinery from the Northern will be installed there. Diamond drill work done during the winter has been decidedly encouraging. It looks as though this work might result in a reawakening of activity on the old range, idle for so many years.

At the Verona mine of the Buffalo Steel Company, in the Loretto region, they have sunk two shafts the past winter and will abandon their No. 1. The two are showing ore at no great depth, and the milling system of mining will be adopted.

### The New Baraboo District.

In the Baraboo, Wis., district the Illinois Mining Company (Deering Harvester Works) have cut from 40 to 80 feet of hard hematite ore running up to 62 per cent. iron, and some 40 feet more running about 40 per cent. The ore is of good physical character, and a very considerable tonnage is now exposed. They will ship this year to their furnaces, at South Chicago, as a mixture with their Mesaba ores. Other work in adjoining regions is showing well, and several drills have been put into ore. This formation has no connection with any of the lake ranges, and the ore has an appearance quite different from that of any of them. It is quite evident that a new district of more than passing value and permanence has been found there. D. E. W.

**The Blast Furnace Workers.**—James McMahon, president of the National Association of Blast Furnace Workers, has returned to Youngstown, Ohio, and states that at a meeting of the Executive Board of that organization a vote was taken against demanding an eight-hour work

day for blast furnace labor, but that a demand for an increase in wages of all members of the organization will be made instead.

## Notes from Great Britain.

### The Markets.

LONDON, March 28, 1903.—Prices, while nominally unchanged, are firm, with an upward tendency. In the Midlands it will not be surprising if at the quarterly meeting held next Thursday there will be an actual rise in standard prices. The foreigners still keep off the market, but of course there are foreign contracts running. Those which have recently been concluded have been diverted into English channels. There is a better demand for finished iron, but unmarked bars continue to show a complete lack of buoyancy, and very low figures are quoted for common nut iron. Merchant qualities command £6 7s. 6d. a ton. There has been a slight reaction in spelter, being quoted to-day at £23, compared with £23 12s. 6d. last Monday. This has had some slight effect in the galvanizing trade, but quotations for galvanized goods remain at last week's level. The demand for black sheets is not quite so active, but there is a fair amount of work on hand which keeps prices firm. Prices are as follows:

**Pig Iron:** Scotch, 56 shillings 9 pence; Middlesbrough, 51 shillings 4½ pence; hematite, West Coast, 60 shillings 10½ pence. Forge qualities: Staffordshire cinder, 48 shillings 6 pence; part-mine, 49 to 51 shillings; all-mine, 57 shillings 6 pence to 67 shillings 6 pence; best ditto, 80 to 85 shillings; cold blast, 95 to 100 shillings; Northamptonshire, 48 shillings 6 pence to 50 shillings; Derbyshire, 51 to 52 shillings; North Staffordshire, 51 to 52 shillings; Lincolnshire, 53 shillings 1 penny.

Public stores stocks, Thursday, March 26.	Tons.
Connal's, at Glasgow.....	19,641
Connal's, Middlesbrough, hematite.....	1,300

Hematite, Wednesday, March 25.	
West Coast.....	22,988
Connal's, at Middlesbrough.....	131,980

**Finished Iron:** Marked bars, £8 10s.; Earl of Dudley's brand, £9 2s. 6d., second grade, £7 10s.; common unmarked bars, £6 5s. to £6 10s.; North Staffordshire bars, £6 15s.; angles, £6 10s. to £7; sheets, singles, £7 12s. 6d. to £7 17s. 6d., doubles £7 15s. to £8, trebles £8 7s. 6d. to £8 12s. 6d.; galvanized corrugated sheets, f.o.b. Liverpool, £11 10s. to £11 15s.; hoop iron, £7 5s. to £7 10s.; nail rod and rivet iron, £7 5s. to £7 10s.; gas strip, £6 12s. 6d. to £6 15s.

**Steel:** Bessemer billets, £4 15s. to £4 17s. 6d.; Siemens billets, £4 17s. 6d. to £5; mild steel bars, £6 12s. 6d. to £7 2s. 6d.; steel plates, £6 5s. to £7; steel girders, £6 to £6 5s.; steel angles, £5 15s. to £6 7s. 6d.

### The Harvey Process.

The Harvey United Steel Company report a profit for the year of £77,121. A dividend is paid of 7½ per cent. The chairman states that during the year a successful suit was entered against the Terni Steel Works of Italy for infringement of patent; in consequence very considerable sums in royalties became payable to them. To the question asked by anxious shareholders when their patents would expire and what the effect would be upon the earnings of the company, the chairman has replied that the patents, broadly speaking, were divided into two groups—the Harvey patent and the Krupp patent. The Harvey patent, upon which the great bulk of their royalties were payable, would expire in this country in September, 1905, or a little over two years. The corresponding patent would expire in France one year later, in Italy two years later, and in the United States three years later. The Krupp patent, upon which a portion of their royalties was payable, would expire in December, 1908. As to the effect upon the earnings of the company when these various patents fell in, the directors could not speak with absolute definiteness at the present time, but it was only right to point out that there would undoubtedly be a considerable diminution in the earning capacity of the company with the expiration of the main Harvey patent in this country. They were advised that the falling in of the patent in this country did not affect their control of it in the other countries.

### Profits and Dividends.

P. & W. McLellan, Limited, of the Clutha Works, Glasgow, pay a dividend of 6 per cent. on both the preference and ordinary shares. At the end of the year they had

contracts in hand to the value of £300,000, and although they consider their prospects fairly good, yet they confess that competition is severe.

Beyer, Peacock & Co. report a profit of £104,000, and pay a dividend of 10 per cent. This is certainly very gratifying, because the year 1901, when they made a profit of £98,758, was looked upon as exceptional, and the shareholders expected a reduced dividend. Beyer, Peacock & Co. are locomotive builders, whose works are situated at Gorton, Manchester.

### An Interesting Transfer.

An interesting combination has taken place in the Sheffield steel trade by the transfer of the business of Askham Brothers & Wilson, Limited, of the Yorkshire Steel & Engineering Works, to Edgar Allen & Co., Limited, of the Imperial Steel Works, Sheffield, and whose productions are so well and favorably known in America. The arrangements date as from January 1 last. J. & P. U. Askham, who have controlled and conducted the business of the former company for nearly 40 years, acquire a considerable financial interest in the new amalgamation, but, owing to severe illness and increasing years, will not share in the active management of the business.

During the 37 years in which Askham Brothers & Wilson have carried on their business, they have seen very great changes in the trade. Commencing as steel manufacturers in 1866, they gradually increased their business, adding first one article and then another in the shape of tools, then crucible steel castings, and then tramway points and crossings. They were the first to produce crucible steel points and crossings, which, however, were not in great demand for horse tramways, but when steam was introduced the demand was increased considerably. Having invented a patent automatic spring point, rendered compulsory by the Board of Trade, rapid extensions were made in the business, yet when electric traction became the order of the day, even this extension was doubled. In addition to the tramway business, what was practically a separate department was carried on for the manufacture of crushing, grinding and separating machinery, also elevators and conveyors.

Edgar Allen & Co. announce that to meet the necessities of their own growing trade in steel and steel castings, &c., they have acquired 17 acres of land adjoining their work at Tinsley, upon which to erect additional works, and these will now be extended for the accommodation and development of the Askham & Wilson business, especially in connection with the construction of tramway lay outs, &c. Until this accommodation can be provided work will be carried on as usual at the Yorkshire Steel & Engineering Works.

### Belgian Locomotive Orders.

Orders for over 100 locomotives have just been placed by the Belgian State Railways Administration. According to the Brussels correspondent of the *Metropole* (Antwerp), the engines will be of the Mackintosh type and are to attain a speed of 104 km. (64 miles) an hour. The cost is given as between 80,000 and 85,000 francs. Four of the compound engines which have been doing such excellent work on the Great Northern of France have also been ordered at a cost of 110,000 francs each.

### Water Pipes for Export.

Thomas Piggott & Co., Limited, of Birmingham, have just obtained an order to supply about 7½ miles of lap-welded steel pipes for the water supply of the Kolar gold fields. These pipes are in 15-foot lengths, and are constructed from a single plate of mild steel, rolled into cylindrical form and lapwelded by a patented system. Piggott & Co. were the first to introduce this type of conduit, which is in large demand abroad, especially in cases where the cost of freight for cast iron mains is prohibitive. A further saving in transport is also effected, when these light pipes are exported, by varying the diameter of the pipe line, and nesting the different sizes together for shipment.

### German Technical Training.

The new Prussian High School for Shipbuilding and Engineering will be opened at Kiel on April 15, and will be divided into three sections, shipbuilding, engineering in general, and marine engineering. The school is being



established for the purpose of offering to young men possessing the requisite preliminary knowledge of the professions specially selected by them an opportunity of perfecting themselves to such an extent as will enable them to accept technical appointments in commercial enterprises or in the state. The course of instruction at the school will include visits to shipbuilding yards, factories and other works, as well as practice in the electrical and engineering laboratories. Such a school is bound to have an important bearing on the future, and is but one of the many efforts Germany is putting forth to increase her share of the world's work.

#### Boring Operations in Staffordshire.

The boring operations that have been carried on during the last twelve months on the Keele Estate in Staffordshire have had a successful issue, and several of the seams for which search has been made have been found. The iron stone and coal measures which have furnished the wealth of the Potteries and the Staffordshire mines, and which had been traced to a fault—known as the Mill Bank fault—in the Silverdale district, had not hitherto been known to exist beyond the fault on the Keele side, but all doubt on the subject has been removed by the discovery of several of the seams under circumstances which make the existence of the whole almost a certainty.

If such should prove to be the case the discovery will lead to the opening up of a new mineral field providing a working area, rich in coal and iron stone, which is variously estimated at from 5000 to 8000 acres. A depth of 1000 feet was passed without touching the desired minerals, but soon after this iron stone was found, and, continuing their efforts, the operators at a depth of 1390 feet came across the "half-yard" seam of iron stone and coal. Another important measure, known as the "red shagg," was expected about 40 feet below the "half-yard," and this was struck at 1435 feet. About 70 feet lower the "red mine" iron stone and coal is expected, and the borings are approaching this depth. The seams that have been found occurred in their normal relative geological position.

#### B. & W. Bollers on the Cruiser "Hermes."

The second class cruiser "Hermes" has completed her contract trials after being refitted with Babcock & Wilcox boilers in place of the original installation of Belleville boilers, and she is now to be handed over to the Navy Boiler Committee, who will conduct a long series of trials with the new boilers. The original installation of boilers was practically of the same weight as the new, 315 as compared with 316 tons, of which only 38 tons is due to water in the boilers. On the full power trial in the North Sea the Babcock boilers, working with an air pressure of  $\frac{1}{2}$  inch, gave steam for a mean of 10,451 indicated horse-power, the coal consumption being 1.53 pounds, while on the eight hours' full power trial with the original boilers the power was 10,264 indicated horse-power, and the fuel consumption 1.58 pounds. On the continuous steaming trial the Babcock boilers gave 7824 indicated horse-power, with a coal consumption of 1.54 pounds, as compared with 7713 indicated horse-power and 1.59 pounds per unit of power per hour with the Belleville boilers. It would, therefore, appear as if the boilers were about equal. The Belleville boilers had larger grate area—797 square feet as compared with 760 square feet in the new boilers, but much less heating surface—24,080 square feet as against 26,520 square feet. Considerable interest attaches to the durability of the new boilers in British ships.

#### The South Durham Steel & Iron Company.

The South Durham Steel & Iron Company report a disastrous year. This is evident by stating the profits for the last four calendar years:

1899.....	£179,296	1901.....	£105,680
1900.....	125,834	1902.....	33,242

The result is that, whereas in 1901 they paid a dividend of 10 per cent., on the profits now announced they pay no dividend, and only six months 6 per cent. preference. The results of the trading of this company must be held to be to a large extent typical, for the reason that it is notoriously well managed, so that it is the con-

ditions of trade which have affected the result, and not inefficiency in the company's internal affairs. Their make in the past year was 228,968 tons, 11,445 tons less than in 1901, and 41,445 tons less than in 1900. The output was valued at £1,457,988, but the profits on this large turnover only amounted to £33,242. This was owing to the fact that, 1, The finished article had been reduced in price more than the raw material; and, 2, that there had been an overproduction of steel in Germany, resulting in our country being used as a market for their surplus make, which had been exported at a loss.

#### Big Wagons and Port Authorities.

T. R. McKenzie, the general manager of the Clyde Harbor Trust, Glasgow, has invited the various harbor authorities in Scotland to take part in a conference to consider the question of improved facilities of ports for loading coal and other traffic. In the early stages of the discussion as to the economy of handling wholesale traffic in large wagons, the railroad officials made a strong point of the fact that the introduction of larger wagons was a matter which could only be carried to a successful issue by co-operation with the port authorities. The contention is that there is not at the present time a single shipping port, iron or steel work or gas work or any work in Scotland, capable of dealing with a wagon of a carrying capacity of 30, or even 20 tons of coal, and there are not half a dozen collieries in Scotland whose appliances for separating coal are capable of admitting a wagon at the height of a 30-ton wagon. It is quite possible, now that the Clyde Harbor Trust has taken action, that other harbor organizations will follow suit. It must be remembered, however, that in South Wales, in Manchester, and I think in Liverpool, there is no difficulty in handling large wagons of even 30 tons.

S. G. H.

#### New National Banks.

The following statement in relation to organization of National banks since the passage of the act of March 14, 1900, has been issued from the office of the Controller of the Currency:

At the close of March, 1903, the law in relation to the organization of banks with minimum capital of \$25,000 has been in operation three years and seventeen days. During that period there have been added to the National banking system 1442 associations with aggregate capital stock of \$86,135,500. The additions to the system by conversions of State banks and reorganizations of State or private banks were 179 and 443, respectively, the capital of the converted banks amounting to \$12,226,000, and of the reorganized associations, \$29,740,000.

The banks organized during the period in question deposited as security for circulation bonds to the amount of only \$20,475,500, or a fraction less than 24 per cent. of the capital. During the month (March) 56 National banks were organized, with capital stock of \$2,170,000, and bond deposit of \$642,550. On March 31, 1903, the number of National banks was 4869, and their authorized capital stock \$739,178,695.

The amount of bonds on deposit as security for circulation has increased since March 14, 1900, from \$244,611,570 to \$342,160,770, or \$97,549,200, and National bank circulation shows a net increase during this period of \$128,116,528.

The fire loss of the United States and Canada for the first quarter of this year was materially below the average of the same period in recent years. The records of the *New York Journal of Commerce* place the losses for the three months ended March 31, 1903, at \$39,164,800, or \$9,000,000 less than in the first quarter of 1902, and \$6,500,000 below the corresponding period of 1901. The March fire losses were unusually light, amounting to but \$9,907,000.

G. H. Duggan of Montreal has been appointed general manager of the Dominion Iron & Steel Company of Sydney, C. B.

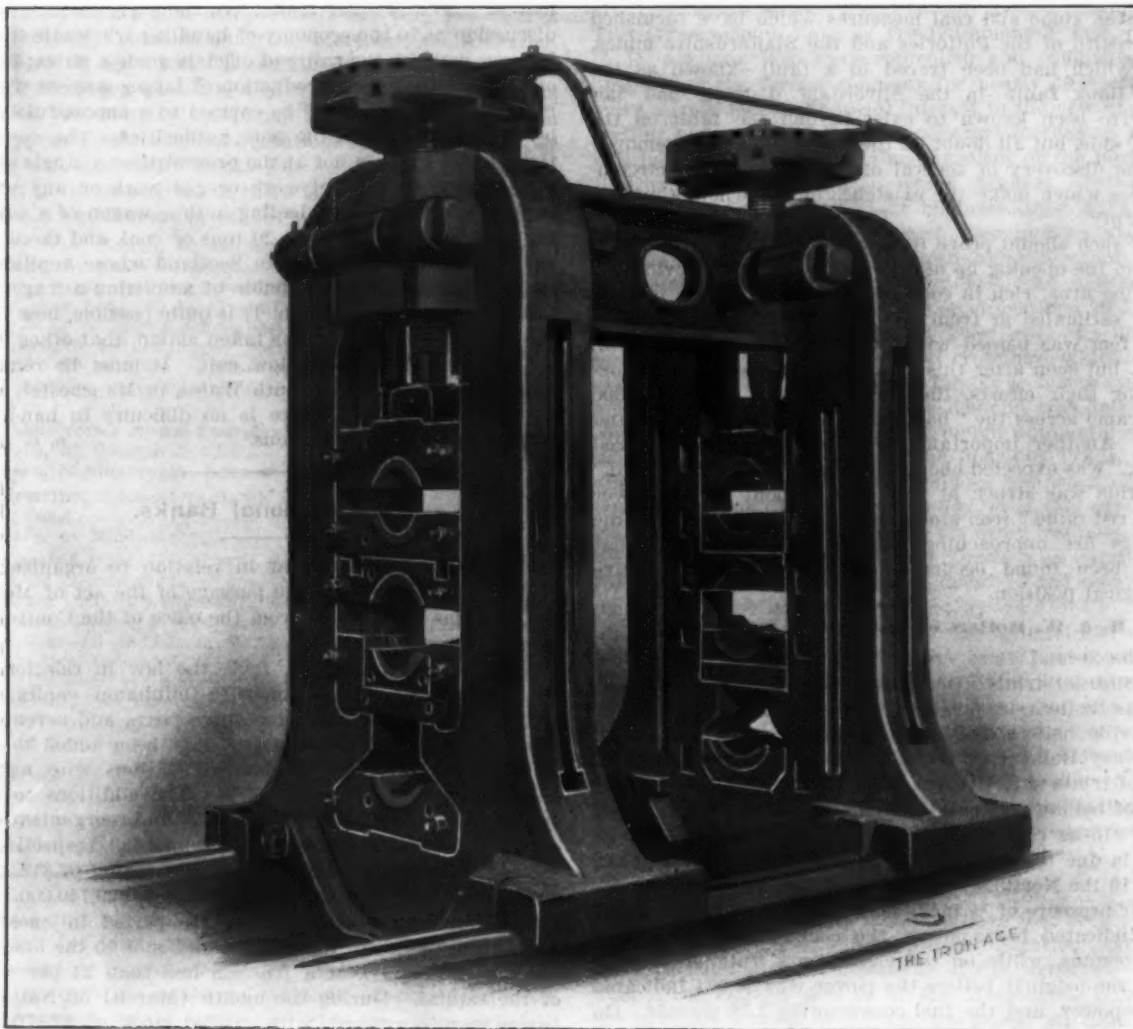
### The New Philadelphia Three-High Mill.

We illustrate herewith a new 14-inch mill built by the Philadelphia Roll & Machine Company, Philadelphia, after designs by Wm. B. Hughes, chief engineer of the Harrisburg Pipe & Pipe Bending Company, Harrisburg, Pa. This mill, which is of the usual three-high type, consists of four stands of housings and one set of dummy housings, all of the same design and perfectly interchangeable. While practically intended for use as a skelp mill, this train is adaptable for rolling structural shapes and general jobbing work. Three of the four stands of rolls permit of 20-inch length of roll, while the other has a 40-inch face, the dummy rolls being 12½ inches between the bearings, and all are 14 inches in diameter.

able blocks, &c., are placed between the rolls, after which the bearings can be removed with ease and the rolls lifted out vertically from the top of the housing either singly or together as desired. All parts of this mill are made very heavy throughout, and air furnace iron is used in the principal castings. The pinion housing and other detailed parts of the mill are of the usual type, except for the fact of their being heavier to conform with the idea of general greater strength. This mill, with rolls, aggregates a total weight of 180,000 pounds.

### Chicago's Demand for Business Methods.

CHICAGO, ILL., April 4, 1903.—The political agitation of the past few weeks which has shaken Chicago to the



THE NEW PHILADELPHIA THREE-HIGH MILL.

The principal features of this mill are the open housings and the cross yokes; the latter are of one piece, and are firmly held in position in the housings by four bolts 2½ inches in diameter, two on each side of each housing. By leaving the substantial shoulder, which takes up the entire load, in the vertical face of the yoke and housing all strain is removed from the bolts, and firmness and rigidity are given to the different parts, the bolts merely preventing any spreading of the housing, and after removal enable the yoke to be slid out of the housing by a crane or other means. The bearing boxes can be removed from the outside of the housings, they being made with rabbets on the outside and held in position by means of a bolt. To facilitate the removal or lining up of the rolls hydraulic cylinders are placed in the pit underneath each housing. These are connected with a strut, which extends upward through the housings, engaging by means of a projection each separate bearing which in operation is raised and lowered, the carriers remaining stationary. On raising the bearings with the rolls, suit-

foundations seems likely to bear good fruit. The long, long fight which has been waged for clear air, pure water, clean streets and right action is bringing to the surface some good resolutions at least. But while legislation is needed, the enforcement of the ordinances already on the statute books is the essential thing and the renovation of the political Augean stables will probably accomplish this. The people seem to be wider awake than ever before and the State Legislature and City Council seem to be willing to lend a more willing ear to the crying needs of the community. However, some of the sound measures introduced into the Legislature are being maimed by obstructionists, who, like the poor and weary, are always with us.

The new charter amendment has been crippled by the State Senate in striking out the provision which does away with the present county government. The charter amendment as it was sent to Springfield authorized the Legislature to enact laws consolidating in the Chicago municipality the governmental powers now vested in the



county, city, board of education, township, park, sanitary and other local commissions. The action of the Legislature is not to be final. It provides that no law affecting the government of the city shall take effect unless a majority of the legal voters authorize it, and that no law for the consolidation of city and county governments within the city, or for the division of the county, shall take effect until the majority of the legal voters, both of the city and of that portion of the county outside the city, shall have assented. As the bill was amended in the Senate, however, the opportunity to consolidate city and county governments within the city has been denied. There is strenuous opposition to the passage of the crippled bill, but even in its present shape the measure enacted would be a boon to Chicago, much as it has fallen short of the ideal provided for by the Chicago charter convention.

Another measure of the utmost importance is the bill affecting the sanitary district, which provides for adding Evanston and the Calumet territory to the Chicago sanitary district. The residents of all the territory affected are heartily supporting the consolidation movement, the opposition coming only from the friends of the decrepit Illinois and Michigan Canal. The sanitary canal, it is urged, has cost the people of Chicago \$40,000,000, and unless the Evanston and Calumet districts are annexed and the sewage from these districts diverted from Lake Michigan it will prove an absolute failure. Notwithstanding this great expenditure, pure water at Chicago is still a dream, and in order to accomplish the objects for which the canal was constructed it is necessary that annexation be made. There is some evidence that the politicians will listen to the prayer of the people for pure water, and take the requisite action in spite of the opposition.

The new smoke ordinance, which is now a law by the grace of the City Council, is a decided improvement, theoretically, at least. This ordinance creates a department of steam boiler inspection under the management of a boiler inspector, and under his direction are a supervising mechanical engineer and a smoke inspector. The ordinance thus puts the two former bureaus of smoke and boiler inspection into one department. All plans for steam plants must be examined and approved by the Building Department before a permit can be issued for the erection of buildings. This will eliminate one of the fruitful causes of the smoke nuisance—at least as far as new plants are concerned—which is the most important feature of the new law. It provides also for the installation of boilers which can do properly the work required of them, the board of inspectors being required to pass on the specifications before installation. If the plans of the power plant of the proposed structure meet with the approval of the board the Building Commissioner is notified and upon him devolves the duty to see that the specifications are fulfilled. The work of inspecting boilers in existing plants also includes the inspecting of fire boxes. Should the official find that the construction of the fire box is not calculated to prevent smoke the proprietor may be given an opportunity to make the necessary alterations. Should he fail he is still liable to prosecution. As this provision will doubtless require the modification of many of the power plants in the city, a year of grace has been granted, during which time the proprietor may give notice of the contemplated changes. During this period the operation of the law is held in abeyance for such as give notice.

The ordinance makes it obligatory on the part of the firm selling a boiler to notify the board when a sale of a boiler has been made for use in the city, the name of the person purchasing and to whom delivered. It is important to note that the ordinance applies equally to locomotives, tug boats and stationary power plants. If the ordinance is enforced Chicago may enjoy a sight of the sun at mid-day after the year of grace.

Sites have been secured by the De Forest Wireless Telegraph Company for stations along the line of the great lakes and the system will be put into operation May 1. These stations will be built at Bayview on Lake Erie near Buffalo, at Cleveland, Detroit and Point Gratiot at the foot of Lake Huron, and will be in charge of skilled electricians. The company are now negotiating

with the Weather Bureau and several of the large transportation companies to report the weather conditions, forecasts and the passage of boats.

## OBITUARY.

WILLIAM W. CARD.

William W. Card, vice-president of the Westinghouse Air Brake Company, at Wilmerding, Pa., and also president of the Pittsburgh Screw & Bolt Company, at Pittsburgh, Pa., met with a tragic death in front of his home in the East End, Pittsburgh, on Saturday afternoon, April 4. Mr. Card was on his way to his home and on alighting from a street car was struck by another going in an opposite direction and almost instantly killed. Mr. Card was born in Nelson, Madison County, N. Y., September 6, 1831, and in 1851 was employed in the engineering department of the Panhandle Railroad. In 1859 he was appointed superintendent of the Steubenville division of the Panhandle Railroad, and while filling this position became acquainted with George Westinghouse, who at that time was trying to introduce his air brake. Under Mr. Card's supervision the air brakes gained their first recognition of practical advantage. In 1870 Mr. Card became connected with the Westinghouse Air Brake Company. In 1880 he was elected secretary of the company, which position he retained until October of last year, when he retired and was given the title of vice-president. Mr. Card had been a member of the American Society of Civil Engineers since 1883. He is survived by his wife and four children.

LYMAN S. TAYLOR.

Lyman S. Taylor, vice-president of the Louisville Bolt & Nut Company, Louisville, Ky., died on March 17 at his home in that city from peritonitis, aged 67 years. He was identified with the iron business for many years. Mr. Taylor was born in Cornwall, Conn., and started work in Unionville, Conn., where he rose to be superintendent of an iron works. While he was employed in Unionville he invented a process for making nuts, which is now in universal use and is known as the Dunham machine. After he had invented the Dunham machine Mr. Taylor organized a stock company and established an iron foundry at Southington, Conn., where he remained in business for several years. Subsequently he moved to Fowlerville, N. Y. Later he made his home in Buffalo, Cleveland and Massillon, Ohio. In the last named place he also owned and operated a coal mine and a rolling mill in connection with his other interests. From Massillon he moved to Anderson, Ind., where he established a large bolt and nut factory. The establishment depended entirely upon natural gas for power, and when the gas supply in that section of Indiana began to lessen several years ago, it was decided to move the factory. Mr. Taylor, with C. A. Parker and S. S. Bush, established the Louisville Bolt & Nut Company three years ago. The plant was destroyed by fire a year later, but was rebuilt on a larger scale, and is now one of the most important plants of its kind in the country, employing 400 men. Mr. Taylor served in a Connecticut regiment throughout the Civil War.

### NOTES.

WILLIAM H. LAUGHLIN, vice-president of the Cleveland Axle Mfg. Company, and Cleveland-Canton Spring Company, died at Jacksonville, Fla., March 20.

PHILIP H. STERNBERGH, vice-president and treasurer of the Kansas City Bolt & Nut Company, died in Kansas City April 2, of pneumonia, aged 38 years. Mr. Sternbergh was born at Reading, Pa., and up to five years ago was junior member of the firm of J. H. Sternbergh & Son of that city.

WILLIAM McDONALD, head and founder of the Lapeer Steam Engine Works, Lapeer, Mich., died on March 23, aged 84 years. He was born in Scotland and had lived in this country 55 years.

B. A. BREAKER, for some years a member of the firm of Seeberger & Breaker, Chicago, Ill., wholesale hardware merchants, died in Los Angeles, Cal., Thursday, March 12, aged 72 years. He was actively engaged with the Hoffman Hardware Company of Los Angeles up to within four days of his death.

# The Iron Age

New York, Thursday, April 9, 1903.

DAVID WILLIAMS COMPANY,	- - - - -	PUBLISHERS.
CHARLES KIRCHHOFF,	- - - - -	EDITOR.
GEO. W. COPE,	- - - - -	ASSOCIATE EDITOR.
RICHARD R. WILLIAMS,	- - - - -	HARDWARE EDITOR.
JOHN S. KING,	- - - - -	BUSINESS MANAGER.

## Employers' Associations.

The formation of employers' associations to handle labor questions is proceeding with great rapidity. The movement has been a little slow in getting under headway, but it promises to make up for lost time by increased energy and enthusiasm. The aggressions of organized labor have become so menacing to the welfare of communities and the nation that with almost one accord the employers of labor are seeking the co-operation of their colleagues in opposing organization with organization. They recognize the fact that they now have a power to deal with which requires greater resources than are possessed by any one employer or set of employers. While it is undoubtedly true that organizations of workingmen include in their membership only a fraction of those who work for wages, yet these organizations have been so systematically welded into close affiliation with one another that they exert an influence altogether disproportionate to their numbers. They overawe the independent workmen in practically every community and assume at all times to be the sole representatives of the rights of labor. Against this extra governmental power which has sprung up, and which bids fair to control by threats, violence or the boycott all the occupations requisite to the growth, comfort, convenience or support of every community, it has become absolutely necessary to array another equally strong, if not stronger, power, unless the people of this country are willing to see themselves subjected to a worse tyranny than ever afflicted any of our ancestors. As this is a matter which appears to be impossible for the Government to regulate, the employers are undertaking to accomplish the task.

The movement to organize employers is proceeding on two lines. One is the formation of associations consisting of those engaged in one branch of business or in closely related trades. The other is the organization of all the employers in a town or city, irrespective of occupation. Examples of the former are found in the Stove Founders' National Defense Association, National Founders' Association, National Metal Trades Association, Iron League of Chicago, National Association of Manufacturers and Erectors of Structural Steel and Iron Work, California Mine Owners' Association, contractors and builders in numerous cities, &c. Examples of the latter are the employers' associations of Cincinnati, Chicago, Dayton, Ohio, and Columbus and Shelbyville, Ind. Associations of this character are now being organized in a number of other cities, and from present appearances it seems likely that in a short time these organizations will be very plentiful.

Prominent among the organizations of mixed employers are the Employers' Association of Dayton, Ohio, and the Employers' Association of Columbus, Ind. It is asserted that Dayton was at one time most conspicuous as a union ridden town, and its industries were fast being ruined. Under the efficient leadership of John Kirby, Jr., the employers of the place formed an association to handle the labor question, and after a sharp conflict they freed themselves from union domination, and to-day

it is a town in which Americanism rules, and not trades unionism. In the town of Columbus, Ind., about a dozen industries are located, giving employment to about 1500 persons. Until two years ago the town had not known what a union organizer looked like, and the workmen were peaceful, thrifty and contented. Then a labor agitator began his work and in a few months unionized all classes of labor, after which "grievances" were discovered. Demands were made for recognition of the union, shorter hours, more pay, fewer apprentices, arbitration their way, &c. Strikes and the boycott followed, and at length the employers decided to form a union of their own and test their strength against that of the workingmen. It has broken the force of the strike and boycott and expects to restore matters to their normal condition very speedily. It may be of interest to our readers to know the objects of the Columbus Employers' Association as given in its constitution. They are as follows:

1. To protect its members in their rights to manage their respective businesses in such lawful manner as they may deem proper.
2. The adoption of a uniform legitimate system whereby members may ascertain who is, and who is not, worthy of their employment.
3. The investigation and adjustment, by the proper officers or committees of the association, of any question arising between members and the employees, when such question shall be submitted to the association for adjustment.
4. To endeavor to make it possible for any person to obtain employment without being obliged to join a labor organization, and to encourage all such persons in their efforts to resist the compulsory methods of organized labor.
5. To protect its members in such manner as may be deemed expedient and proper against legislative, municipal and other political encroachments.

An interesting provision in the by-laws is the following:

Section 7. At the request of a member directly interested, it shall be the duty of the Executive Committee, subject to the approval of the association, to authorize, order and conduct the prosecution of the leaders of mobs or persons threatening or doing injury to the property of the members; also those instrumental in establishing so-called boycotts against their production, and the expenses of such prosecution shall be paid by the association.

As some of our readers may desire to profit by the experience of an employers' association of this character in forming a similar organization, it may be stated that a copy of the constitution and by-laws can be had by addressing M. T. Reeves, president, Columbus, Ind.

The time seems to be at hand when these employers' associations, of whatever character, should form a closer bond and establish such relations with one another that they may be able in the future to exert their combined power in checking the encroachments of the great combinations of labor. This belief is entertained by the National Metal Trades Association, as outlined in the resolutions adopted in their annual convention at Buffalo last week. It is also known to be the sentiment of prominent members of the National Association of Manufacturers, whose annual convention will be held at New Orleans the coming week. Should a plan for such a combination of employers' associations be decided upon at New Orleans as will commend itself to popular support, it will be the most important piece of work that could be undertaken at this time.

## The Crop Outlook.

We have reached a time in the year when attention is more generally centered upon crop conditions, and from now on returns from Government and unofficial sources will be watched with increasing interest, as of the utmost importance in shaping business conditions of the future. During the last week of March weather conditions were highly favorable for farm operations, the temperature ranging slightly above normal throughout the great cen-



tral valleys. But the temperature was not sufficiently high, nor the warm weather prolonged enough to force vegetation unduly; hence but little damage was done upon the advent of the sudden cold wave, accompanied by rain and snow, which was experienced during the latter part of the first week of April. In Kansas and Nebraska it is reported that there was no rain or snow, as was the case east of the Missouri River, and hence little delay occurred in farm work; in Kansas the seeding of oats is reported as practically completed, and in Nebraska well advanced. According to local estimates the oats acreage in Texas and Kansas is somewhat smaller than last year, but official figures are lacking.

It is too early for reliable figures as to the acreage to be planted to corn. According to local authorities there has been no killing of clover or meadows, and therefore no surplus of pasture land is to be put under the plow, and little land in the corn belt not already under permanent use. It is doubtful, too, whether the acreage of corn land which has gone this year into wheat can be set off with an equal area of other crops. Some little planting of corn land is reported having taken place in Oklahoma and Kansas, not much change being noted from last year's area. In the Ohio and Mississippi valleys the opinion seems to prevail that up to the present there has been some little reduction in corn acreage.

The most important feature at the moment respecting crops is the remarkable showing of wheat. Returns from all important wheat growing sections during the week, it is claimed, indicate a condition above 95, which is very unusual. According to Mr. Snow the only April showing in 20 years equaling present conditions was in 1891 when a general average of 96.9 was reported. The present situation is notable because of the marked uniformity of prospects for winter wheat, only one State showing a condition below 90 and only four below 95. Outside of Washington and a few counties in Western Oregon, where some winter killing is reported—resulting in a larger sowing of spring wheat—scarcely a county on April 1 reports expectations of less than a full crop.

Generally considered, the agricultural outlook has seldom been better than at present at the opening of the crop season, the cotton lands of the Mississippi Valley being the only exception to the rule, but even there the spring overflow is early enough to permit full recovery later in the season.

### Speculative and General Business.

It is only within very narrow limits that Wall Street reflects the general commercial condition of the country. Wall Street was convulsed over the Venezuelan affair in December, 1895, and on two or three occasions later, on account of monetary stringency, and in May two years ago over the Northern Pacific operations, and but little less on one or two other occasions of a similar character, with practically no effect upon general business. At the present time the condition of general business is very active and the stock market is dull.

Last December there was not so much said as there has been recently about the "undigested securities," but M. Forgan, president of the First National Bank of Chicago, wrote: "The absorption of money for business purposes, to which I have referred, has caused the withdrawal to a considerable extent of money and credit from the support of the market for securities, causing decline in the prices current for them. There has no doubt been overproduction of securities. It is a favorable indication that this production has practically stopped for the present. It seems to me as if the market for securities must wait till the accumulation of wealth overtakes the invest-

ments already provided for." This is about as good an explanation of the present situation as can be found.

A considerable part of the enormous quantity of securities offered on the market in the last few years do not represent improvements in plants or equipments, but simply the capitalization of profits in an exceptionally prosperous time. This is understood by the public and it accounts for the fact that the public's appetite for stocks and its ability to pay for them have been checked.

But foreign financial critics who watch only the barometer of the Stock Exchange and the thermometer of the money market are prophesying evil because they are not looking at the actual increase in the wealth of the country. The large and constant increase of railway earnings, the indubitable profits of the iron and steel and other industries, and the value of the crops, are far more important indications of the country's business than the decline in stock prices and the advance in the rates for call loans. Advances of wages, reducing profits, may depress the price of shares, and yet by increasing the purchasing power of 100,000 or 500,000 persons may give assurance of increased general trade.

The value of crops is of the utmost importance in the inquiry whether the prosperity of the country is real or fictitious. The following figures give the farm valuations on December 1 of corn, wheat, oats and cotton as computed by the Department of Agriculture:

1869-72.....	\$4,300,408,273	1885-88.....	\$5,888,753,752
1873-76.....	4,322,286,628	1889-92.....	6,540,469,743
1877-80.....	5,289,923,668	1893-96.....	5,004,759,123
1881-84.....	6,291,296,382	1897-1900.....	6,110,036,124

Here we have the explanation of the recovery from the depression following 1873, culminating in exceptional prosperity just before the panic of 1884, the quieter conditions for a few years thereafter, the unprecedented wave of prosperity that culminated in 1892, the prostration of business in the next four years, when there was a decline of 23½ per cent. in the value of crops, and then the rapid recovery, beginning in 1897, when bad crops in Europe created a great demand for our grain, a repetition on a larger scale of the experience of 1891-2. The fluctuation in the values of these four crops in individual years is shown by the following figures:

1870.....	\$1,152,433,648	1891.....	1,908,737,504
1876.....	1,030,305,696	1896.....	1,225,906,103
1882.....	1,721,143,822	1900.....	1,794,512,555
1885.....	1,260,616,692		

The value of the corn, wheat and oats crops for the four years of the latest depression, the four prosperous years immediately preceding and the latest four years, was as follows:

1889-92.....	\$5,179,183,487	1899-1902.....	\$5,855,728,807
1893-96.....	3,891,009,008		

It is hardly necessary to go further to find an explanation of hard times and unprecedented prosperity.

**The Standard Motive Power Company.**—The Standard Motive Power Company, recently organized at Canal Dover, Ohio, for the manufacture of locomotives, have let contracts for the building of their works. The Pittsburgh Engineering Company have been awarded these contracts, which include the building of an erecting and machine shop, 150 x 500 feet; a boiler shop, 80 x 500 feet; a blacksmith and forge shop, 80 x 300 feet, and a boiler house, 82 x 129½ feet. These buildings will all be of steel construction with brick side walls and slate roofs, and will be substantially constructed. The equipment of the power house will be furnished by the Smokeless Combustion Company of New York City. About 2000 tons of steel will be used in the construction of the buildings.

CHICAGO, ILL., April 7, 1903.—The Cambria Steel Company have secured a contract for 1000 steel gondola cars, and the Standard Steel Company have likewise secured an order for 1000 cars of similar design from the Chicago, Burlington & Quincy Railroad.

## Interesting Labor News.

### Rutland Union Must Pay Strike Damages.

Damages against a labor union for loss suffered by a strike were awarded by a jury at Rutland, Vt., on April 4, to the F. R. Patch Mfg. Company. The sum which the jury fixes for the plaintiff to recover is \$2500. A press dispatch states that it has been contended by counsel for the plaintiff that the property of individual members of the defendant union is liable in execution of a judgment should it be rendered in their favor. It is expected, therefore, that efforts will now be made to enforce collection upon property of individual members as well as the union treasury. If this step succeeds a new principle of law affecting labor disputes will be established in this country. The case so far stands practically on all fours with the Taff Vale Railroad decision rendered in England within a few weeks, in which the principle of the liability of British labor unions for financial loss caused by strikes was first established.

The Rutland decision was in the damage suit of the F. R. Patch Mfg. Company against Protection Lodge, No. 215, International Association of Machinists. The jury returned the verdict in favor of the manufacturers after having deliberated 20 hours. The company sued for \$10,000 damages, alleged to have been suffered as the result of a strike of the machinists some time ago. The plaintiff alleged that the defendant organization, of which the strikers were members, intimidated nonunion men and prevented them from filling the positions made vacant by the strikers; that the plaintiff was forced to maintain a boarding house for the nonunion employees and was obliged to protect them by hiring private police. The case had been on trial for two weeks and attracted much attention in labor circles. The strike was for the recognition of the union.

### Indiana Minimum Wages Statute Invalid.

An Indianapolis dispatch states that the legislature of 1901 enacted a law, at the demand of union labor, which provided that no one employed on work done for counties, cities or towns should receive less than 20 cents an hour. The Supreme Court, on April 1, held the law to be unconstitutional, as it interferes with the liberty of contracts. Judge Jordan delivered the opinion of the court, and said that no sufficient reason could be given why labor should receive an unalterable wage and everything else be left to be governed by supply and demand. If the legislature had the power to make a minimum rate of wages it could fix the maximum rate, and it might also regulate the price of flour, wheat and corn.

### A Labor Amendment to the New York State Constitution.

Senator Dowling's resolution proposing an amendment to the State constitution, known as the "Labor Amendment," was advanced to the order of third reading in the Senate at Albany, N. Y., on April 4, without objection. It will probably pass the present Legislature with a provision that it shall be submitted to the people for their approval at the general election of 1904. Organized labor is interested in the adoption of the amendment, which is intended to meet decisions of the Court of Appeals on the validity of the "labor laws." These laws provided that on public work, whether for the State or a municipality, the prevailing rate of wages must be paid, that eight hours should constitute a day's work and that only citizens should be employed. The Court of Appeals decided that all these laws were unconstitutional, and organized labor immediately set about to have the constitution amended. Senator Dowling's amendment provides that the Legislature may regulate wages and hours of labor and make provision for the protection and welfare of persons employed by the State, or any civil division of the State, or by any contractor on public work.

### Walking Delegate Ordered Out of the Brooklyn Navy Yard.

On April 3 a walking delegate, or business agent, for the Housebuilders', Housesmiths' and Bridgebuilders' Union ran against the officials of the Brooklyn Navy Yard and was escorted, technically under arrest, outside of the yard and instructed not to come back. The banishment of the agent was the result of an assault on Frank D.

Beale, foreman for the Brown Hoisting Machinery Company, and some missionary work the agent had been doing among the 20 men employed by the company engaged in erecting a crane for hoisting material for the new battle ship "Connecticut," which is being built by the Government in the navy yard. The workmen are nonunion men, and the agent demanded their discharge and the substitution of Brooklyn men. "Of the 20 men we employ on the crane," said Mr. Beale, "six are experts. An ordinary structural iron worker on a building would not be able to turn out the work we require. We could go to almost any union and probably not get the kind of men we want. These men have been employed by this company for years. They are paid better than union men and are perfectly satisfied." The officers of the navy yard say that the nonunion men will be kept at work, even if a United States regular has to be kept at the side of each individual workman.

### Union Machinists Break an Agreement.

More than 100 machinists employed at the hoisting engine works of J. S. Mundy, Newark, N. J., quit work on April 6 because of Mr. Mundy's refusal to sign an agreement with the union for one year for the employment of union men only. As he told his employees, he was willing to concede every other demand of the union, but he refused absolutely to enter into any agreement for the removal of his nonunion workmen, some of whom have been in his employ for many years. About 150 machinists were employed in the establishment, about 110 being union men. The 40 nonunion men remained at work. It was not thought that the union men would stop work until May 1, when the agreement with the union for one year will expire.

## The Schwartz Melting and Refining Furnace.\*

BY EDWARD H. SCHWARTZ, CHICAGO.

Test heats have shown that, in general, copper, bronze or brass can be melted in the Schwartz No. 3 furnace with 1 gallon of fuel oil per 100 pounds of metal melted. The cost of maintenance of the brick lining, &c., is 25 cents per ton of metal melted.

Oxidation of the metal, while being melted in the furnace, is very low. Pure copper has shown a loss of only 2-10 of 1 per cent. The small oxidation obtained in this furnace is due to the perfect control of the different kinds of flames, as an oxidizing flame, neutral flame, reducing flame and carburizing flame. When melting copper or bronze in the furnace a neutral flame is kept in the furnace. The different flames in the furnace are judged by the flame that escapes from the spout of the furnace. When melting yellow brass in this furnace a reducing flame is used, which prevents oxidation of the zinc.

A large saving can be made with this furnace when melting copper, bronze or brass on account of no crucibles being used and the low melting cost, together with the saving of labor. There are no ashes to cart away, no coal or coke to handle and no metal lost in the ashes, as in a crucible furnace. From 400 to 1500 pounds of copper or bronze or brass can be melted in the No. 3 furnace inside of one hour.

### Test Heats of Semisteel.

A mixture of semisteel, consisting of 90 per cent. common No. 2 pig iron and 10 per cent. of soft steel scrap, has stood a transverse breaking strain of 3780 pounds, the metal being very soft, clean and also close grained. Semisteel or gray iron when melted in the Schwartz furnace does not take up any sulphur or phosphorus, as iron does in a cupola from the bad coke of to-day.

Semisteel or gray iron, in 1200-pound charges in the No. 3 furnace, can be melted very fluid in one hour. A 3-ton furnace is now being built which will show a lower cost of production. As before stated, the No. 3 furnace consumes 1 gallon of oil to 100 pounds of copper, which melts at 1950 degrees F., and on semisteel or gray iron the No. 3 furnace consumes 1 3-10 gallons of oil per 100 pounds of metal melted. The cost of maintenance, &c.,

\* Paper read before the Philadelphia Foundrymen's Association, April 1.



on the No. 3 furnace for semisteel or gray iron is 30 cents per ton of metal melted. Greater production and lower maintenance cost can be had with the larger size furnace, No. 4.

#### Test Heats of Cast Malleable Iron.

A superior grade of malleable iron is made in this furnace on account of the metal not taking up any sulphur or phosphorus. Malleable iron has been made in the Schwartz furnace in one and one-half hours, the mixture consisting of 35 per cent. malleable Bessemer pig iron, 50 per cent. of sprue gates and 15 per cent. of soft steel scrap. A large saving can be made over the air furnace of to-day with a No. 4 Schwartz furnace, on account of rapidity of melting and the low melting and maintenance cost. Also much valuable space is saved and comfort to the workmen is secured.

#### Steel Made Successfully.

A number of steel heats have been made in the Schwartz furnace very successfully. The steel charges consisted of 40 per cent. low phosphorus pig and 60 per cent. of soft steel scrap. The time taken to make a 1200-pound charge of steel was only one hour and fifty minutes, the furnace being hot when charged. The No. 3 furnace was used in these steel heats, 0.40 per cent. carbon steel being made and poured into castings.

The Hawley Down Draft Furnace Company, Chicago, the manufacturers of this furnace, are now building a No. 4 furnace to make all of the gray iron, steel and semisteel castings that they use, doing away entirely with their coke cupola. Test heats in melting enamel for bathtubs, &c., have been made successfully. Glass and ores of all kinds can be melted or smelted in the Schwartz furnace successfully, as test heats have shown.

The heat that can be obtained in this furnace is over 4000 degrees F.

#### Dimensions, Capacities and Fuel Consumption.

Our furnaces are built in five sizes. The first three sizes we use for brass and the two large sizes for iron and steel.

The capacities for the first three sizes, as given in the catalogue, are for brass, bronze and copper. The capacities for the two largest sizes are 3000 and 6000 pounds per heat, respectively.

The melting time on brass and copper is about 45 minutes to the charge. The melting time for gray iron and malleable iron is about an hour, and the melting time on steel about two and one-half hours.

Our fuel consumption for melting gray iron and malleable iron is less than 30 gallons of oil per ton, and the fuel consumption for the smaller sizes on brass is given in the catalogue.

### The Edwards Oil Fuel Board's Report.

WASHINGTON, D. C., April 7, 1903.—The Edwards Oil Fuel Board of the Navy Department has begun the work of compiling an elaborate final report upon the tests of petroleum for fuel under marine and stationary boilers, upon which a preliminary report was prepared last October. The final report will be of special value, for, while no important changes in previous deductions will be made, it will embody analyses of results heretofore obtained which time and space did not permit to be incorporated in the preliminary findings.

An interesting feature of the final report will be a discussion of burners and a general classification of all devices thus far submitted to the Board's inspection, and which it is estimated number more than 2000. All these burners the Board group under five general classes, as follows: First, drooling burners; second, atomizer burners; third, chamber burners; fourth, injector burners, and fifth, projector burners.

In the drooling type the oil is permitted to flow by gravity or under slight pressure over the mouth of the steam jet, by which it is atomized. In the atomizer type the oil is fed by gravity or slight pressure through a tube parallel with the steam jet and sprayed as in the common atomizer. In the chamber type an attempt is made to vaporize the oil with the steam in a chamber

before forcing it into the fire. In the injector type the oil under pressure is forced out through the center of the steam jet. The projector type is a modification of the injector, the mouth piece being so constructed as to impart a fan shape to the resulting spray. Each of these five classes is susceptible of hundreds of variations dependent upon the size, form and arrangement of the oil and steam jets, but the Board are satisfied that all the burners now in use can be brought under one of these classifications.

#### Many Inventors Disappointed.

Hundreds of inventors have sustained great disappointment as the result of submitting their devices to the Board. Each had been confident that, because his burner had developed satisfactory results under certain conditions, it was suitable for any service and under any type of boiler. The Board, however, are convinced that no one form of burner will ever be universal, and that these devices will be almost as numerous as the conditions encountered throughout the entire field of steam utilization. It is the present opinion of the Board that inventors are making a mistake in seeking to produce burners capable of a higher service than 200 or 250 horse-power each. In the tests made at the stationary plant operated by the Board in this city, after a great deal of experiment, it has been found practicable under a strong forced draft to develop 2000 horse-power with eight burners. Several inventors have presented burners with which they proposed to do the work of the entire eight employed by the Board, but in every case they have met with absolute failure. It is the Board's view that fairly complete combustion cannot be obtained with a large burner discharging a considerable quantity of oil and that much better results will always follow the feeding of an equal quantity of oil through a larger number of small burners.

#### Tests on Locomotives.

A feature of the Board's work within the past six months has been the supervision of a series of tests of oil fuel on locomotives. In this connection interesting memoranda have been obtained, giving the results of runs made on the Boston & Maine and the Florida East Coast railroads. Concerning these tests the expert in charge says in part:

"It may be of interest to note the work done with coal and petroleum as fuel on these locomotives. In each case the engine had its full rated tonnage to haul, and a 30 days' run was taken for the record. On the Florida East Coast Railway, where the road was level, 6¼ gallons of oil was burned per engine mile; the oil weighed 7.55-100 pounds per gallon. The same work with Tennessee coal for fuel resulted in 19.6 miles run per ton of coal of 2000 pounds. Under these conditions 132.3 gallons of oil equaled a ton of coal. The same engine on freight service, with a heavier load at lower speed, showed 10.6 gallons per mile run, and on coal 13 miles per ton, or 131.8 gallons of oil per ton coal.

"On the Boston & Maine, on the Hoosac Tunnel helper, running double head with coal burning engine, up grade 42 feet per mile, and returning light, the engine used 11.45 gallons per mile. Oil weighed 7.75 pounds per gallon. Same engine burning coal ran 12.25 miles per ton of 2240 pounds, and in this service 140.26 gallons of oil equaled 1 ton of coal. In this last test the engines were loaded as nearly equal as could be determined from freight records.

"In conclusion, it may be stated that on the locomotive it was always possible to drive the engine to greater capacity with oil fuel than with coal, and with a smokeless fire. I see no reason why this cannot be done as well in the marine service, and with the work continued along lines following the Hohenstein boiler tests the proper proportions for furnace and boiler settings will be found. In a locomotive from 15 to 25 per cent. of the coal is lost in smoke, unburned gases and cinders, which go out of the stack by reason of sharp exhaust, and there is also a loss of fuel through grates."

W. L. C.

A temporary injunction has been granted enjoining the American Sheet Steel Company from removing any part of their plant at Dennison, Ohio.

## Pig Iron Production at Record Rate.

The lifting of the freight embargo has made it possible not only to blow in a considerable number of blast furnaces, but has also tended to bring the output closer to the normal. The result is that the country is now producing pig iron at an unprecedented rate, and will probably continue to show some further expansion.

The weekly capacity of the furnaces in blast on April 1 compares as follows with that of the preceding periods:

	Total capacity per week. Gross tons.	Coke capacity per week.	Charcoal capacity per week.
April 1, 1903.....	376,576	368,215	8,361
March 1.....	354,733	347,424	7,309
February 1.....	343,111	335,339	7,772
January 1.....	353,800	346,073	7,727
December 1, 1902.....	343,817	336,617	7,200
November 1.....	337,559	330,110	7,449
October 1.....	345,048	337,837	7,211
September 1.....	335,189	328,243	6,946
August 1.....	336,465	328,745	7,720
July 1.....	350,890	343,250	7,640
June 1.....	344,748	337,492	7,256
May 1.....	352,064	337,627	6,437
April 1.....	337,424	331,140	6,284
March 1.....	323,028	316,039	6,989
February 1.....	332,045	325,440	6,605
January 1.....	298,460	291,992	6,468
December 1, 1901.....	324,761	317,358	7,403
November 1.....	320,824	313,775	7,049
October 1.....	307,982	300,538	7,444
September 1.....	299,861	293,256	6,605
August 1.....	303,847	297,269	6,578
July 1.....	310,950	303,793	7,157
June 1.....	314,505	306,391	7,514
May 1.....	301,125	293,915	7,210
April 1.....	296,676	288,766	7,910
March 1.....	292,899	284,825	8,074
February 1.....	278,258	269,923	8,335
January 1.....	250,351	243,254	7,097
December 1, 1900.....	228,846	222,067	6,779
November 1.....	215,304	207,381	7,923
October 1.....	223,169	214,921	8,248
September 1.....	231,778	223,551	8,227
August 1.....	244,426	236,131	8,295
July 1.....	283,413	274,921	8,492
June 1.....	296,376	288,771	7,605
May 1.....	293,850	286,956	6,894
April 1.....	289,482	281,644	7,838

From official returns covering over 99 per cent. of the tonnage we estimate the production, month for month, by districts as follows:

Monthly Pig Iron Production.					
	November, 1902.	December, 1902.	January, 1903.	February, 1903.	March, 1903.
New York....	28,912	34,829	33,071	35,360	43,941
New Jersey....	14,218	17,432	17,378	12,791	14,834
Schuylkill....	41,129	46,527	49,007	41,349	48,476
Lehigh.....	39,580	53,853	58,687	57,638	60,804
Susq. and Lebanon....	38,225	39,945	41,147	35,720	46,052
Pittsburgh....	359,662	368,851	360,795	328,799	372,125
Shenango....	93,186	110,363	111,098	111,725	117,998
West Penn....	77,326	89,767	93,777	86,037	105,488
Md., Va. and Ky.....	89,074	85,357	79,390	83,550	90,224
Wheeling....	59,149	71,990	53,907	56,189	64,044
Cent. and No. Ohio.....	109,263	106,032	90,757	90,575	110,587
Mahoning V....	107,838	124,658	107,510	112,678	137,214
Hanging Rock and Hocking Valley....	27,656	31,289	26,707	30,123	37,256
Ill., Wis., Minn., Mo. and Col.	172,485	170,708	170,880	147,179	167,623
Alabama....	137,289	142,281	136,907	120,479	130,068
Tennessee, No. Carolina and Georgia....	37,887	43,363	41,768	40,383	43,743
	1,432,879	1,537,245	1,472,788	1,390,615	1,590,477
Charcoal pig.	31,544	33,679	34,348	28,742	35,728
Totals....	1,464,423	1,570,924	1,507,136	1,419,357	1,626,205

A very large number of furnaces blew in during March, including Tidewater, two Bethlehem, one Duquesne in Pittsburgh, Atlantic and one Shenango in the Shenango Valley, one Colebrook and one Lebanon in the

Lebanon Valley, one Crozer in Virginia, Benwood in the Wheeling district, Dover, Steelton and Zanesville in Ohio, one Wellston in the Hanging Rock, one South Chicago, one Iroquois, and one Bay View in the Chicago district, and one Allen's Creek in Tennessee. There were blown out Ella in the Shenango Valley, Blue Mountain in Maryland, River in Ohio, Star in the Hanging Rock, one Alice, one Woodstock and one Woodward in Alabama, and there was banked Grand Rivers in Kentucky.

### Coke and Anthracite Furnaces in Blast.

Location of furnaces.	Number of stacks.	April 1.		March 1.	
		Number in blast.	Capacity per week.	Number in blast.	Capacity per week.
New York.....	17	10	9,922	10	10,193
New Jersey.....	7	5	2,878	5	4,000
Spiegel.....	3	3	471	3	466
Pennsylvania:					
Lehigh Valley....	27	25	14,275	23	13,300
Spiegel.....	1	1	112	1	115
Schuylkill Valley....	14	13	11,262	12	10,026
Lower Susquehanna.	10	7	6,064	7	5,844
Lebanon Valley....	12	6	4,970	4	3,096
Pittsburgh District.	33	32	85,416	31	79,101
Spiegel.....	3	3	2,080	3	2,710
Shenango Valley....	19	17	26,900	16	25,919
Western Penn.....	21	18	23,819	18	21,509
Maryland.....	5	3	6,232	4	6,294
Wheeling District....	11	9	14,970	8	13,883
Ohio:					
Mahoning Valley....	15	15	31,600	15	28,109
Cent. and Northern.	14	12	24,950	11	22,646
Hocking Valley....	3	2	971	2	695
Hanging Rock.....	12	10	7,271	10	6,809
Illinois.....	19	16	29,580	13	27,049
Spiegel.....	1	1	971	2	1,112
Minnesota.....	1	1	1,100	1	1,083
Wisconsin.....	5	5	3,520	4	3,024
Missouri.....	1	1	776	1	669
Colorado.....	3	3	4,500	3	4,414
The South:					
Virginia.....	23	20	12,900	19	12,449
Kentucky.....	7	5	2,175	6	2,500
Alabama.....	41	31	28,553	34	30,125
Tennessee.....	16	16	9,087	15	9,434
Georgia.....	1	1	600	1	600
North Carolina....	1	1	290	1	250
Totals.....	346	292	368,215	283	347,424

The status of the charcoal furnaces was as follows:

Location of furnaces.	Number of stacks.	April 1.		March 1.	
		Number in blast.	Capacity per week.	Number in blast.	Capacity per week.
New England.....	7	1	97	1	96
New York.....	3	2	846	1	435
Pennsylvania.....	5	1	70	0	0
Maryland.....	1	0	0	0	0
Virginia.....	3	0	0	1	40
Ohio.....	8	0	0	1	25
Kentucky.....	3	0	0	0	0
Tennessee.....	1	1	62	1	50
Georgia.....	4	2	575	2	422
Alabama.....	5	4	1,233	4	1,168
Michigan, Missouri and Wisconsin.....	12	11	5,378	10	5,073
Texas.....	4	1	100	0	0
Washington.....	1	0	0	0	0
Totals.....	57	23	8,361	21	7,309

### Stocks.

The position of furnace stocks, sold and unsold, as reported to us, was as below on April 1, as compared with the preceding months, the same furnaces being represented as in former months. This does not include the holdings of the steel works producing their own iron:

	Stocks.	Nov. 1.	Dec. 1.	Jan. 1.	Feb. 1.	Mar. 1.	April 1.
Anthracite and Coke.	62,261	85,606	92,560	106,297	144,394	156,732	156,732
Charcoal..	9,597	8,689	7,335	13,344	14,959	14,025	14,025
Totals..	71,858	94,295	99,895	119,641	159,353	170,757	170,757

On one turn of 12 hours recently the 128-inch mill at the Homestead Steel Works of the Carnegie Steel Company turned out 550 tons of finished plates, beating the best former record, which was 493 tons. The best former record for this mill in 24 hours was 1049 tons of finished plates, but this record was also beaten last week when nearly 1200 tons were turned out in 24 hours.



### The Standard Scale & Supply Company, Limited.

The business of the Standard Scale & Supply Company, Pittsburgh, Pa., was originally established in March, 1892, in a very small way at Bellefonte, Pa. At the inception of the concern they acquired the foundry and machine shop of the Valentine Iron Company, operating a blast furnace at Bellefonte. The foundry and machine shop were not adapted to the purposes of the company, but such changes and additions in equipment as were necessary were made and the concern really started in the manufacture of scales without patterns or anything else. Their business expanded rapidly, and some time since the firm decided to seek larger quarters in order to accommodate the growing demand for Standard scales and other equipment made by them. After inspecting a number of sites they decided to locate at Beaver Falls, Pa., where a site of 8 acres has been secured, having a frontage on the main line of the Pittsburgh, Fort Wayne & Chicago Railway, of about 1000 feet and some 400 feet in depth. Upon this site it is the intention of the concern to erect a modern plant for the manufacture of scales, which will be, they state, the largest individual scale works in the country. The buildings will consist of a foundry, 80 x 142 feet; machine shop, forge and wood working shop, a building, \$100 x 200 feet; assembling room, painting shop, packing and warehouse, a building, 100 x 225 feet; boiler house, 36 x 50 feet; power house, 31 x 36 feet, and pattern storage building, 40 x 70 feet. All these buildings will be of steel frame construction, with the exception of the boiler shop, which will be of brick, and all will have slate roofs except the boiler shop, which will be covered with corrugated iron. The buildings will be equipped with the most modern machinery and appliances for making scales and the new works will have at least double the capacity of the old plant at Bellefonte. All the contracts for buildings and equipment have been placed, the buildings to be erected by the Fort Pitt Bridge Works of Canonsburg, Pa. The machinery will be electrically driven, the Westinghouse Electric & Mfg. Company of Pittsburgh supplying the equipment. The concern expect to occupy the new works about September next. The officials of the company are F. B. Gill, chairman; J. C. Reed, treasurer, and William H. Black, secretary.

**The Indiana Weekly Wage Law.**—INDIANAPOLIS, IND., April 7, 1903.—The Supreme Court to-day, in the case against the Republic Iron & Steel Company, holds the Indiana Weekly Wage law unconstitutional, reversing the lower court. It says that the laborer would be deprived of the liberty of making a contract to suit himself.

The tin house department of the new tin plate plant of the McKeesport Tin Plate Company, at McKeesport, Pa., was started up on Wednesday, April 8. On April 20 this concern expect to start five more hot mills, and when this is done the whole plant, containing 12 hot mills and 11 cold mills, will be in full operation.

The Youngstown Car Mfg. Company of Youngstown, Ohio, will probably build a large addition to their plant in which to make steel cars. At present the plant turns out only wooden cars.

One of the largest molds ever poured at the plant of the Penn Steel Casting Company, Chester, Pa., occurred on Saturday last. The casting when finished weighed 85,000 pounds. The casting was a cylinder of open hearth steel for the pressing of car wheels for the Baldwin Locomotive Works at Philadelphia.

The Jones & Laughlin Steel Company of Pittsburgh, Pa., through W. C. Moreland, secretary, have favored the Pittsburgh office of *The Iron Age* with two pictures, one showing their American Iron & Steel Works on the South Side, and the other the Eliza furnaces and coke ovens. These pictures are beautifully finished and handsomely framed and are appreciated by those fortunate enough to receive them.

The offices of F. R. Phillips & Son Company have been removed to 801-802 Pennsylvania Building, Chestnut and Fifteenth streets, Philadelphia.

## MANUFACTURING.

### Iron and Steel.

Extensive improvements in power facilities will be made at the Worcester (Mass.) works of the American Steel & Wire Company this season, out of the works' share of the American Steel & Wire Company's appropriation from the general improvement fund of the United States Steel Corporation. Economy in power production will be the chief aim, because of the distance of the works from the coal fields. A number of engines will be compounded and condensers installed, and wherever power is applied at a distance from power stations electric motors will be installed to do away with long lines of shafting, which cause enormous waste of power in transmission. It will probably be necessary to put in a new engine with direct connected generator, to provide the necessary additional electrical energy. The management of these works report business better than ever before. When the 1901 business was totaled it was expected that the high tide of production had been reached; but 1902 went considerably ahead of 1901, and thus far in 1903 the indications are that the record will again be broken.

The Portland Iron & Steel Company of Portland, Maine, will rebuild their plant for the manufacture of bar iron, which was destroyed by fire last August. The new building will be of steel, replacing a wooden structure, and everything will be fire proof throughout. The work of building and equipping the plant will be rushed and it is expected that operation will begin this summer. The company have organized with these officers: President, R. H. Boutwell; vice-president and treasurer, P. M. Boutwell; secretary, W. S. McGowan, Jr.; directors, these officers and H. B. Cleaves and Eben D. Bancroft.

The rolling mill of the Kittanning Steel & Iron Mfg. Company, at Kittanning, Pa., which has been idle since October 1, was started up last week. The output is muck bar.

The Canonsburg Steel & Iron Works, Canonsburg, Pa., are now operating their sheet bar mill and also some of their sheet mills. They are awaiting the receipt of more machinery before they will put on the balance of their sheet mills. They are employing union men and paying Amalgamated scale wages, and all reports of a strike or other labor troubles at this plant are incorrect. The company will make a specialty of the manufacture of high grades of iron and steel sheets. Their plant is new and is equipped with modern machinery.

During March the open hearth works of the United States Steel Corporation at South Sharon, Pa., turned out 28,950 tons of open hearth billets. The blooming mill at this plant has been closed for repairs, and until these are finished all blooms will be shipped to the New Castle works and rolled into billets there.

The I. H. Goodnow Mfg. Company of Fitchburg, Mass., have taken another contract from the United States Government for projectiles, the new order being for 18-pounders. The company report continued good business for their principal products, which are engine fly wheels and cylinders.

It is stated that the sheet mills of the United States Steel Corporation at Sharon, Pa., will not be removed from that place. This has been under consideration for some time, but it has been decided to allow the mills to remain in Sharon. No action has yet been taken regarding the large tube mill under erection at Sharon by the Sharon Steel Company before they were absorbed by the United States Steel Corporation. Work on this tube mill was suspended some time ago and nothing is being done in regard to it at the present time.

Blast Furnace No. 4 of the Bethlehem Steel Company's group of pig iron furnaces at South Bethlehem, Pa., was blown in last week, after having been out since August 18, 1902. The furnace produced 175 tons in one day.

The Duncannon Iron Company, Duncannon, Pa., have put into operation their new rolling mill, which is one of the most complete of its kind in the State. It will be operated full time to meet the growing business of the company, who have had not an idle day since the coal famine of last winter.

The tonnage produced by the Pennsylvania Steel Company, Steelton, Pa., and worked up into finished product during the month of March, was exceeded only once in the history of the company, and but for the breakdown of an engine on March 30 would have broken all records. As it was, the output of the open hearth department was a record breaker. During the month the company produced at their Steelton and Sparrow's Point plants more than 85,000 tons of ingots, which were worked up into rails, structural iron, frogs, switches and merchant steel. Sparrow's Point produced 36,700 tons of ingots and 31,370 tons of rails, the heaviest of the year. Work on the new buildings of the company at Steelton will be finished the coming summer. The signal and frog and switch departments were this week removed from the old to the new buildings. A new telephone system communicating with all parts of the works has been installed. Poor car service has delayed shipments this week, and coke is very scarce.

President Donovan of the Eastern Steel Company, Pottsville, Pa., this week said: "The prospects of the company are so bright that the directors are considering the advisability of doubling the original plans for the plant." Among the plans

now considered is one for a bridge works in the southern part of Pottstown and blast furnaces in the Fishback Valley.

Star Furnace of the Star Furnace Company, Jackson, Ohio, blew out for relining March 24, and is expected to blow in again about April 24.

Olive Furnace, Ohio, will blow in about May 1.

Glen Iron Furnace, Pa., was put in blast last week.

Northside Furnace, Sharpsville, Pa., will probably blow in this week.

The Brier Hill Iron & Coal Company, operating Grace Furnace, at Youngstown, Ohio, will add two new blowing engines this summer, foundations for which are now being built.

#### General Machinery.

In order to get much needed room to handle their business more economically, the Leavitt Machine Company of Orange, Mass., are building a 40-foot addition to their plant.

It is probable that the Pere Marquette Railroad will extensively enlarge their shops at Saginaw, Mich.

The Standard Machine Screw Company have largely increased the capacity of the Detroit Machine Screw Works, at Detroit, Mich., and the business of the Chicago Machine Screw Company has been removed to the Detroit plant, although the offices of the Chicago company remain in that city, as do also the works of the Pearson Machine Company, manufacturers of screw machinery, which business the Standard Company now control. A new Westinghouse 150 horse-power engine has been installed at Detroit, and the boiler capacity has been correspondingly increased. The Standard Company also own the business of the Worcester Machine Screw Company of Worcester, Mass. The company report business as being exceedingly good.

The Oshkosh Logging Tool Company, Oshkosh, Wis., are about to begin the construction of the first of a number of buildings to constitute their new plant. The first building is to be 65 x 150 feet, two stories, of brick and stone construction and practically fire proof. The additional buildings contemplated will be erected during the next few months. The old factory will be operated and the office maintained there until the new plant is completed.

The Jenison Iron & Steel Shops, Limited, Grand Rapids, Mich., whose plant was recently destroyed by fire, will resume operations as soon as a plant can be found or built, and are now looking for a suitable location in Grand Rapids or elsewhere. They are in the market for a number of iron working machines as well as some wood working machinery for their split pulley department, and will also require a full foundry outfit.

The Cincinnati Planer Company, Cincinnati, Ohio, have been flooded with orders from various sections of the country and abroad. The company are now three months behind in orders, and more are piling up on them. A like condition confronts nearly every manufacturing establishment in that city.

The Detroit Automatic Stoker Company, Detroit, Mich., as a result of rapid growth in business are constructing a new factory on Grand Boulevard. The plant will occupy about 1 1/4 acres of ground. The buildings to be erected consist of a foundry, 184 x 185 feet, and finishing department, 72 x 150 feet. Spurs will be run into the property from both the Michigan Central and Grand Trunk railways. The capital stock of the company is \$50,000. T. H. Simpson, who is also manager of the Michigan Malleable Iron Works, is president of the company; H. S. Taylor, vice-president; G. L. K. Morrow, general manager, and F. C. Thomson, secretary-treasurer.

Frank A. Hecht, Chicago, has purchased the machinery business of Chas. Kaestner & Co., and will continue it under the name of Kaestner & Co. The company have been incorporated with a capital of \$150,000. A portion of the property recently purchased by Mr. Hecht from Chas. Kaestner & Co. at a cost of \$405,000 will be utilized by the company. The land is occupied by a modern factory.

E. O. Williams, second-hand machinery, Chicago, has moved his warehouse and office from 63 South Canal street to 68 South Clinton street.

S. L. Holt & Co., machinery dealers, located at 67 Sudbury street for 26 years, have moved to Fort Hill Square, Boston, Mass.

David Gessner of Worcester, Mass., has taken additional room in the building which he occupies in the manufacture of cloth finishing machinery, which will add 50 per cent. to the size of his plant. His plan is to enlarge his machine shop, which will add a number of new machine tools.

Marcus Mason & Co. of New York, manufacturers of plantation machinery, have added considerable space to their shop in Worcester, Mass., and will install new machine tools.

Chas. H. Besly & Co., Chicago, report business very good. They have made shipments of Gardner grinders to New York, Pennsylvania, Vermont and the Pacific Coast during March, and report receiving many orders from various shops throughout the country for general factory and mill supplies. They are having a large demand for oil cups, mainly from makers of agricultural implements and iron working machinery. They have booked many orders for future delivery and report that there seems no end to this prosperity. Many inquiries are being

received from Europe and South America and orders from these countries are increasing rapidly.

Joseph T. Ryerson & Son, Chicago, state that the orders in hand and prospective ones indicate unabated confidence in the continuance of the demand for fabricated material. In one or two minor instances manufacturers have been able to make fairly good deliveries of machines, but the general condition is unchanged. The demand seems to be well distributed from the heaviest hydraulic machinery to sheet metal working tools.

The Novelty Iron Works, Dubuque, Iowa, say that business has not been up to that of the corresponding month a year ago. Orders are not booked ahead as they were in March, 1902. The outlook for foreign trade is quite satisfactory, especially from European countries.

The Fox Machine Company, Grand Rapids, Mich., say that they have many orders which call for specific delivery each month as required by customers, and the outlook is good for future business. While the increased cost of manufacture has not as yet caused an increase in the selling price of the manufactured product, it must do so as soon as there is a let up in the demand. They report an excellent outlook for foreign trade.

The Chicago House Wrecking Company, Chicago, state that they find conditions in the machinery line very much improved as compared with March, 1902; not only are inquiries for larger apparatus but they cover a wider territory and result more generally in the closing of larger orders. The great difficulty they have encountered has been in the car situation, having experienced great annoyance from the inability to make prompt shipments. They believe that business during 1903 will be very heavy unless this difficulty in making shipments too seriously interferes with trade.

James Bonar & Co., Incorporated, of Pittsburgh, are erecting a large machine shop and brass foundry at Fortleth street and Allegheny Valley Railroad. It will be equipped with a high pressure water tube boiler, which will carry a pressure of 200 pounds or over per square inch. The test facilities will also include water pressure for hydraulic work.

Business continues heavy at the shops of the Putnam Machine Company of Fitchburg, Mass., the company reporting that there is no sign of a falling off in the volume of orders.

The National Supply Company of Pittsburgh, manufacturers of oil well supplies, will probably greatly enlarge their plant located at Auburndale, Ohio.

The new officers of the Stanley Electric Mfg. Company of Pittsfield, Mass., elected at the recent meeting of the Board of Directors are as follows: President, W. Murray Crane, Pittsfield, Mass.; first vice-president, Dr. F. A. C. Perrine, Pittsfield, Mass.; second vice-president, M. D. Barr, New York; third vice-president, S. N. Hammill, New York; treasurer, W. W. Gamwell, Pittsfield, Mass.; assistant treasurer, R. S. Murray, Pittsfield, Mass.; secretary, W. S. Westover, New York; assistant secretary, A. G. Davis, New York.

The Wilmarth & Morman Company, Grand Rapids, Mich., report that sales for the month of March were about 20 per cent. in advance of a year ago, which they think very encouraging considering the prosperity experienced at that time. The outlook is very encouraging for the next few months at least. Their trade in England, the English colonies and South America is increasing. A very satisfactory order was recently received from London.

The Harrisburg Foundry & Machine Company, Harrisburg, Pa., are working day and night on the largest orders in their history. Last week orders were booked for engines aggregating 1200 horse-power. The company have received specifications, with a request to bid, for the construction of engines aggregating 1200 horse-power for the Pennsylvania Railroad to be used in the machine shops of the large yards the railroad company are building at Enola, near Harrisburg.

The York Electric & Machine Company of York, Pa., have secured a growing Western trade. Last week a large shipment was made to the Capital City Electric Company of Denver, Col., and another will be made to the same company this week.

The Tomlin-Harris Machine Company, Cordele, Ga., eight years ago established a plant for machine and foundry work. They have been principally engaged in repairs of locomotives and saw mill machinery. They also manufacture stationary engines and hydraulic wheel presses. They have had a successful and increasing business, the past year having been their best, while the outlook is very favorable.

The Whitins Machine Company of Northbridge, Mass., are buying large numbers of machine tools, because of a large increase in their machine shops. The company manufacture looms and other textile machinery.

#### Power Plant Equipment.

The Nelson Gas Engine & Automobile Company, Harlan, Iowa, are erecting a new plant, 40 x 120 feet, with an L 40 x 40 feet for a foundry. The required equipment has been purchased, mostly from the Marshall & Huschart Machinery Company of Chicago, including a drill press, lathe, milling machine, shaper, cutter and rimmer, boring and turning mill. The company have an established business in gasoline engines and will soon take up the manufacture of automobiles.



The Oakland City Water Company, Oakland City, Ind., inform us that they will be ready to receive bids about May 1 for the construction of water works. The plant will cost about \$40,000, and A. H. Kennedy of Rockport is engineer in charge.

A 120 horse-power return tubular boiler and a 60 horse-power low pressure engine are required by the Mt. Carmel Iron Works, Mt. Carmel, Pa., who are enlarging and modernizing their plant. Recent equipment purchases include a Lodge & Shipley lathe, Rogers vertical and turning mill, Binsse horizontal mill, and an Acme single bolt cutter.

The Chicago Caloric Engine Company, Chicago, have been incorporated with a capital stock of \$28,000 for the purpose of manufacturing machinery. The incorporators are Edmund A. Adcock, Edward Evarts and W. A. Geiger.

The Stewart Boiler Works, Worcester, Mass., have taken the contract for a battery of four horizontal tubular boilers, 7 feet in diameter and 200 horse-power each, for the St. Johns Lumber Company of Van Buren, Maine. Other recent orders include New Bedford Towboat Company of New Bedford, Mass., a Scotch marine boiler, 9½ feet in diameter; Stevens Linen Company of Webster, 200 horse-power tubular boiler, and Warren Cotton Mills of Warren, R. I., 200 horse-power tubular boiler.

The Charter Gas Engine Company, Sterling, Ill., say that the condition of their business for the month of March has been exceedingly good and as compared with the corresponding month a year ago has been in advance of it. Orders and inquiries indicate activity for a number of months to come. They have some foreign trade, received through exporters.

The Union Steam Pump Company, Battle Creek, Mich., say that their business seems to be handicapped somewhat by reason of the high price of material, the constant increase in labor, the recent advance in freight rates and the delay in getting goods to the consumer.

The James D. Lalor Engineering Company of Philadelphia inform us that the equipment has not yet been purchased for the new plant of the Westmoreland Boiler Company, at New Kensington, Pa. As stated in these columns last November, the plant will be of brick and steel and will include a foundry, 50 x 275 feet; machine shop, 50 x 80 feet; cleaning house, 30 x 50 feet; boiler and engine house, 38 x 76 feet; core house, 50 x 175 feet, and a three-story storage house, 40 x 75 feet. It will be lighted by electricity and will be operated by 32 electric motors. The equipment will consist of two 175 horse-power water tube boilers and engines, direct connected to 75-kw. generators; steam pumps, air compressors, pneumatic and electric cranes, and all modern foundry and machine shop appliances.

The Fitchburg Engine Works, Fitchburg, Mass., have a large number of orders on hand, some of them being: Four 300 horse-power compound engines for Hotel Belmont, New York; two 300 horse-power compound engines for Berg & Co. of Newark, N. J.; a second engine for the Cochran Chemical Company of Boston, Mass., of 200 horse-power; 500 horse-power compound engine for North Adams (Mass.) Gas & Electric Light Company, this being the seventh engine for that company; 200 horse-power engine for the Massachusetts Hospital for Epileptics at Palmer, Mass.; 600 horse-power engine for the John Stephenson Car Works at Elizabeth, N. J., and a cross compound 700 horse-power engine for the Elmira, N. Y., Water, Light & Power Company.

#### Foundries.

The Poughkeepsie Foundry & Machine Company, Poughkeepsie, N. Y., have broken ground for an addition to their group of buildings at their new North Side foundry plant. The building is for the cleaning and shipping department, and will have about 6000 feet of floor space.

The Sterlingworth Railway Supply Company, Easton, Pa., have plans completed for additions to their malleable department, increasing its present capacity some 5000 tons per annum.

What is said to be the heaviest casting ever made in Chester, Pa., was successfully poured at the Penn Steel Casting Company's works on April 4, when a hydraulic cylinder for pressing car wheels at the Baldwin Locomotive Works, Philadelphia, was made. Two furnaces were charged with 55 tons of metal, the casting weighing 42½ tons when finished.

The Wilmington Malleable Iron Company, Wilmington, Del., have taken out a permit for the erection of their large new plant, and will start construction at once. There will be six buildings in all, which they expect will be ready for operation in six or nine months. The equipment has all been purchased.

A settlement was effected between the Molders' Union and the Foundrymen and Manufacturers' Association at a conference in Wilkes-Barre, Pa., on Tuesday, April 1. The molders asked for a nine-hour day with a minimum wage of \$2.75 and were granted a ten-hour day with \$2.75 as a minimum. They formerly received \$2.50 as a minimum. Among the firms represented at the conference were the Vulcan Iron Company, Wilkes-Barre, Riverside Foundry Company, Pittston; Delahunty Machine Company, Pittston; the Allis-Chalmers Company, and smaller concerns of Lackawanna County.

The Chelmsford Foundry Company, Boston, Mass., are reorganizing and putting in additional capital for the purpose of continuing the business on a larger scale.

#### Bridges and Buildings.

The recent fire at the Hetherington & Berner Structural Iron Works' plant, Indianapolis, Ind., damaged the pattern shop and machinery, the loss being estimated at \$10,000. The pattern making work was shifted to another part of the works and on the following morning the plant was in operation as usual.

The New Jersey Bridge Company, successors to the Wynkoop & Braly Company, Manasquan, N. J., advise us that they have purchased most of the equipment for the new bridge plant they are building. The larger items include E. Keeler Company, 100 horse-power steam plant; Rand Drill Company, air compressor; Acme Machinery Company, screw cutters and bolt headers; Long & Alstatter Company, angle shears and double punch and shears; Manning, Maxwell & Moore, rotary planer; J. R. Van Dyck Company, lathes, drills and cold metal saw machines. The officers are James H. Wynkoop, president; Jno. M. Braly, vice-president, in charge of engineering; P. E. Lane, vice-president, in charge of contracting; Charles W. Danforth, secretary, and C. W. Dean, treasurer.

The Ohio Steel Erecting Company have been organized at Steubenville, Ohio, with a capital of \$100,000. The incorporators are A. S. Buckingham and P. P. Lewis of Steubenville; W. L. Messimer of Wilmington, Del.; E. W. Cooper of Pittsburgh, and H. V. Caskill of Lisbon. The company will do a general business in iron structural work.

The West Virginia Bridge & Construction Company, Wheeling, W. Va., have a contract for the erection of a large steel building for the New Castle Bolt & Forge Company, New Castle, Pa.; another for the Phoenix Iron Works Company at Meadville, Pa., and also have the steel frame work for a court house at Elkins, W. Va. The company are comparatively a new concern, but are operating their shops to full capacity and have a large amount of work on hand.

#### Fires.

The plant of the Western Oil Mfg. Company, at Newark, N. J., was destroyed by fire April 1. The loss is placed at \$50,000.

#### Hardware.

Owosso Mfg. Company, Owosso, Mich., manufacturers of screen doors, window screens, adjustable frames, snow shovels, &c., have recently completed a brick addition to their plant, 40 x 70 feet, three stories. The first floor is used entirely for office, while the third floor is made fire proof for painting or varnish work. The company have just finished equipping their entire plant with automatic sprinklers for fire protection.

Maine Mfg. Company, Nashua, N. H., manufacturers of refrigerators and window screen frames, report that the demand for the Maine screen sticks and corners thus far has greatly exceeded that of any previous season. The company are running full capacity in all departments, but are utterly unable to keep up with their orders. During the present season they have increased their facilities to the extent of adding a new 250 horse-power engine, while they have also materially enlarged their storage capacity.

The A. J. Phillips Company, Fenton, Mich., manufacturers of wire screens and specialties, refer to their factory as well provided with orders and running overtime. During the past season they built a four and a half story warehouse, 64 x 150 feet. They have also increased their capacity by the addition of several machines, and at the present time their working force is the largest in their history.

The Iver Johnson's Arms & Cycle Works, Fitchburg, Mass., report business even better than last year. The company's export business is growing rapidly, until it is now about 40 per cent. of the total. The bicycle business is better than last year, a fact which the officers of the company attribute as much to the fact that fewer concerns are in the business as to the increasing popularity of the bicycle. The company's plant is constantly increasing in capacity by the installation of new machine tools.

The work of repairing the damage done by fire to the factory of the Loring Coes & Co., Incorporated, department of the Coes Wrench Company, at Worcester, Mass., has been finished, and the plant is now running as formerly, with business very heavy.

McCrosky & Huber, manufacturers of Universal adjustable reamers and small tools, Cincinnati, Ohio, report 1902 business as nearly 300 per cent. larger than the previous year, with equally good prospects for the present year. They are now manufacturing adjustable reamers of all styles and sizes, and owing to the fact that they have recently installed new special machinery are in a position to meet the growing demand for their product.

#### Miscellaneous.

The Hudson Rolling Mill Company, Bloomfield, N. J., manufacturers of sheet and ingot metals, have increased their capital stock to \$150,000 and will erect a new plant on the Delaware, Lackawanna & Western Railroad, to provide sufficient facilities for taking care of their increased business. When the new plant is completed the company will take up in connection with their present lines the manufacture of sheet copper, brass and kindred metals, limiting the output to sheet work at first, but eventually extending it to include rods, wire and tubing. Wil-

Ham S. Benson is president; Harry B. Martin vice-president, and Peter J. Quinn secretary and treasurer.

Contrary to current reports, the New York Shipbuilding Company, Camden, N. J., will not at present reopen the old Gloucester Iron Works, which they recently purchased.

Cooper, Wells & Co., St. Joseph, Mo., hosiery manufacturers, whose factory was recently destroyed by fire, are replacing it with a three-story building, 67 x 227 feet, which will be modernly equipped. All machinery has been purchased, including 100 horse power electric motor, driven by a 125 horse-power engine.

The Michigan Land & Iron Company have closed the independent office which has been maintained at Marquette for many years under the management of Horatio Seymour, and in future the business affairs of the company will be conducted at Marquette by J. M. Longyear. The company hold large tracts of timber and mineral lands in the upper peninsula, about 500,000 acres, mostly in Marquette, Alger, Baraga and Iron counties.

The East Biwabik Iron Company, Duluth, Minn., have been incorporated with a capital of \$75,000. The company organized by the election of A. C. Hubbell, president; T. A. Merritt, vice-president, and F. H. Merritt, secretary. Eleven forties adjoining the town site of Biwabik and including the town site of Merritt have been acquired by the company.

The Keystone Coal & Coke Company of Greensburg, Pa., have placed an order with the Cambria Steel Company of Johnstown for 225 steel cars. This order will give the Keystone Company a total of about 1000 steel cars.

The incorporation of the Viereggs Fire Escape Company, Omaha, Neb., with a capital stock of \$105,000 for the purpose of manufacturing and selling the patent fire escape of Henry Viereggs, Grand Island, Neb., is announced. The incorporators are Henry Viereggs, Henry A. Sievers, Lorenzo L. Johnson and Martin W. Kirkendall.

The Worcester Gas Light Company of Worcester, Mass., are planning to build a new gas holder this season. It will have a capacity of either 1,500,000 or 2,000,000 cubic feet. They have ordered from the Stewart Boiler Works of Worcester a Scotch boiler of 200 horse-power normal capacity and 8 feet in diameter. The purpose is to duplicate the present boiler capacity.

The Albert & J. M. Anderson Mfg. Company, Boston, Mass., machinists and manufacturers of electric railway, light and power specialties, have incorporated their business.

The new plant of the Pacific Coast Pipe Company, Spokane and Ballard, Wash., manufacturers of galvanized wire wound pipe, will be equipped with modern labor saving machinery throughout, and will have a capacity of a mile of 6-inch pipe per day. The machinery, consisting of two headers, two wrappers, molding machine, saws and other minor pieces, was furnished by the Syphers Machinery Company of Spokane. The power is electricity.

The E. D. Smith Construction Company, who have the contract for the building of the Market Street Subway, Philadelphia, from Twenty-second street to the Schuylkill River Bridge, have commenced work.

The Warren Sheet Metal Company have broken ground for their new plant at Warren, Ohio. It will include a power house, 34 x 47 feet; engine shop, 42 x 108 feet; galvanizing shop, 30 x 60 feet, and a three-story warehouse, 46 x 108 feet. All of the buildings are to be of hollow building blocks and the two large ones will have slate roofs.

The St. Louis Dock, Railway & Warehouse Company, St. Louis, Mo., are being organized to construct concrete and iron docks and warehouses, involving an expenditure of \$10,000,000, and which, it is said, will give St. Louis the largest and finest river and rail terminals of any city on the globe. Thomas Warren, president of the Warren Commission & Investment Company, is interested.

The Pease Car & Locomotive Works of Chicago and Hegewisch, have assigned, the liabilities ranging from \$250,000 to \$300,000, and assets being estimated at \$175,000. It is stated that the company have been doing a business of \$1,000,000 annually.

The General Automobile & Mfg. Company of Cleveland have been incorporated under laws of Delaware with capital stock of \$125,000. They manufacture gasoline automobiles and are preparing to increase their facilities, having contracts for several hundred automobiles for 1903 delivery.

The Roberts & Nauder Stove Company have incorporated to manufacture stoves and ranges at Philadelphia; capital stock, \$25,000; directors, Clarence V. Roberts, John Nauder and William McLean.

The Auto-Machine & Repair Company of Wilkes-Barre, Pa., have incorporated to manufacture and repair automobiles; directors, E. R. Tubbs, Harry W. Tubbs and D. L. Creveling.

The Hodge Mfg. Company have incorporated to manufacture brass, metal, &c., at the Borough of Greenville, Pa.; capital, \$10,000; directors, E. W. Hodge, J. M. H. Hodge, Garfield Hodge, Elizabeth Hodge and Angelus L. Hodge.

A contract for the largest interlocking installation ever placed in America, and probably much the largest in the world,

has recently been given to the Union Switch & Signal Company of Pittsburgh for the St. Louis terminal. The Westinghouse electro-pneumatic system will be adopted, and the contract calls for 258 working levers, with 51 spare levers, which will perform 748 functions.

The York Automatic Company have incorporated to manufacture automatic weights, scales, &c., at York, Pa.; capital, \$15,000; directors, G. W. Reider, C. W. Yost and D. E. Small.

The Wood Mfg. Company of Columbus, Ohio, have incorporated with \$10,000 to manufacture stampings, plates and novelties in metal. Incorporators: Rodney J. Wood, Clark O. Wood, W. L. Wood, George M. Wood and William M. Cartmell.

Standard Plumbing Supply Company, Philadelphia, have incorporated with a capital of \$50,000; directors, L. M. Ford, T. B. Reeves of Philadelphia, W. A. Brecht of Ashbourne.

The steel steamer "City of South Haven," launched at the yards of the Craig Shipbuilding Company, Toledo, last week, will show several new departures for lake vessels. She is 260 feet long, 40 feet beam, 16 feet deep, and has a draught of 12½ feet. Triple expansion condensing engines of 3000 horse-power give a speed of 20 miles an hour. She is to be equipped with a Marconi wireless telegraph outfit, being the only vessel on the lakes thus equipped. During the excursion season a daily newspaper will be printed on board. Each stateroom will be equipped with a telephone, and connection will be made with the telephone systems of South Haven and Chicago when the boat lands, enabling passengers to communicate with friends in the city without leaving their staterooms.

The Todd Mfg. Company of Toledo, Ohio, have been organized under laws of Arizona with \$100,000 capital stock. They will manufacture automobiles and parts and bicycles and parts. Officers are: S. S. Thorn, president; John V. Todd, general manager; J. D. Crawford, secretary; J. J. Cooney, treasurer. The company will establish a plant in East Toledo, but the site has not been fully settled upon. Work is to start as soon as possible.

Nelson Morris & Co., Chicago, intend to build a large packing plant at Kansas City, Mo. As their plans are not yet matured no detailed information is available.

The Frontier Electric Lightin<sup>g</sup> Company of Buffalo, N. Y., formed by interests connected with the Buffalo Gas Company, have been incorporated with a capital stock of \$800,000, to operate in Buffalo and surrounding towns.

### Merger of Coke Companies.

All of the large coke interests of the United States Steel Corporation operating in the Upper and Lower Connellsville regions have been merged into the H. C. Frick Coke Company and the capital of that concern has been increased from \$10,000,000 to \$20,000,000. This action is in line with the concentration policy of the United States Steel Corporation, the merging of the American Steel Hoop Company and the National Steel Company into the Carnegie Steel Company being a recent instance. The United States Coal & Coke Company, operating in the Pocahontas region, and some other small coke concerns located outside of the Connellsville region are not included in the merger. The concerns taken over by the H. C. Frick Coke Company are: United Coal & Coke Company, McClure Coke Company, Continental Coke Company, American Coke Company and Southwest Connellsville Coke Company, the latter formerly operated by the Illinois Steel Company. The merger of these concerns into the H. C. Frick Coke Company gives the concern a total of about 18,000 ovens in the Connellsville region, being fully 75 per cent. or more of the total producing capacity of the Upper and Lower regions. The officials of the H. C. Frick Coke Company are: Thomas Lynch, president; D. H. Coble, secretary, and Philip Keller, treasurer. The directors are Thomas Lynch, C. M. Schwab, E. H. Gary, E. J. Buffington, W. P. Palmer, W. B. Schiller, Thomas Morrison, D. M. Clemson, D. E. Kerr and B. H. Coble. Headquarters are in the Carnegie Building, Pittsburgh. During the past week the United States Steel Corporation, operating the United States Coal & Coke Company, have placed contracts for the building of 600 additional coke ovens in the Pocahontas fields in West Virginia. This concern now have 2150 ovens in course of erection, and will have a total of 3000 beehive ovens in the Pocahontas region when additional contracts have been placed.

The H. C. Frick Coke Company of Pittsburgh are building 120 coke ovens at Mutual Works in the Connellsville region. It is probable the Frick Coke Company will build a large number of other ovens in the Connellsville region this year.



## The Iron and Metal Trades.

Our monthly blast furnace report shows that the improvement in the supply of Coke has had a marked effect not alone on the number, but also on the capacity of blast furnaces in operation in the country. We entered the month with a Coke and Anthracite furnace capacity in operation aggregating 368,215 gross tons per week, which is far above any previous record. The March production of Anthracite and Coke Pig we estimate at 1,500,477 gross tons, and adding 35,728 tons of Charcoal Pig, we reach the enormous total for the month of March of 1,626,205 tons. Since there is likely to be a return to normal conditions during this month, and since some important stacks are getting ready, we may expect the attainment of a rate of product 20,000,000 gross per annum before the summer is far advanced. The moderate accumulation of stock in the face of this enormous production is an eloquent proof of the phenomenal current consumption. The latter, it must not be forgotten, is aided, too, by the fact that the Coke supply is more plentiful.

The Pig Iron markets are weaker, although a fair amount of buying has taken place. The reduction in the "official" Southern prices has been widely misunderstood. It was really only, so far as the Central West was concerned, a recognition of actual market rates as they had prevailed for a considerable period. In the Eastern markets it did carry values below those prevailing, and competing sections have been forced to meet the new range of values. No fresh business has been done by importers in foreign Pig Irons, so that the position of European makers to the new condition of affairs has not yet been tested.

The demand for Basic and Low Phosphorus Pig continues, and some round lots have been placed.

The Steel market has undergone little change. Prominent interests in the Central West are still hard pushed to get out the tonnage needed. Eastern consumers continue to buy foreign Steel in 1000-ton lots on the basis of \$28.50 to \$29, and one lot of 10,000 tons of Canadian Steel has been contracted for at private terms. Some of the Steel is to be used for drawback export business. It is interesting to note that the Maryland Steel Company have again entered the tidewater Billet market as a seller.

Reports from the Finished Iron trade continue satisfactory. Specifications are rolling in at a very heavy rate, particularly in those lines in which the spring trade of the distributors is a conspicuous factor. In spite of the reports of labor troubles in the building trades, some very large tonnage is coming out for Structural Material. Some large contracts have already been booked, and very large amounts are practically closed. It is interesting to note that the work on the improvements of the constituent companies of the United States Steel Corporation is coming out. This week 24,000 tons were booked for McKeesport, Lorain and Homestead.

## A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,  
Declines in Italics.

At date, one week, one month and one year previous.

	Apr. 8, 1903.	Apr. 1, 1903.	Mar. 11, 1903.	Apr. 9, 1902.
<b>PIG IRON:</b>				
Foundry Pig No. 2, Standard, Philadelphia .....	\$21.00	\$22.25	\$22.25	\$18.75
Foundry Pig No. 2, Southern, Cincinnati .....	20.25	20.25	21.25	15.00
Foundry Pig No. 2, Local, Chicago .....	22.50	22.50	23.00	18.50
Bessemer Pig, Pittsburgh .....	21.85	21.85	21.85	17.75
Gray Forge, Pittsburgh .....	20.50	20.75	20.75	18.25
Lake Superior Charcoal, Chicago .....	25.50	26.00	26.50	21.50
<b>BILLETS, RAILS, ETC.:</b>				
Steel Billets, Pittsburgh .....	30.00	30.00	30.50	31.00
Steel Billets, Philadelphia .....	*28.50	*29.00	*27.75	32.50
Steel Billets, Chicago .....	31.50	31.50	31.50	....
Wire Rods, Pittsburgh .....	37.00	37.00	36.50	36.00
Steel Rails, Heavy, Eastern Mill .....	28.00	28.00	28.00	28.00
<b>OLD MATERIAL:</b>				
O. Steel Rails, Chicago .....	18.50	18.50	18.25	17.50
O. Steel Rails, Philadelphia .....	21.50	21.25	21.25	....
O. Iron Rails, Chicago .....	24.50	24.50	24.00	24.00
O. Iron Rails, Philadelphia .....	25.00	24.50	24.50	25.00
O. Car Wheels, Chicago .....	24.00	24.00	24.00	19.00
O. Car Wheels, Philadelphia .....	24.50	24.50	24.50	17.50
Heavy Steel Scrap, Pittsburgh .....	21.50	21.50	21.00	....
Heavy Steel Scrap, Chicago .....	18.25	18.25	18.25	16.50
<b>FINISHED IRON AND STEEL:</b>				
Refined Iron Bars, Philadelphia .....	1.93½	1.93½	1.93½	1.92
Common Iron Bars, Chicago .....	1.85	1.80	1.86½	1.85
Common Iron Bars, Pittsburgh .....	1.85	1.85	1.89½	....
Steel Bars, Tidewater .....	1.75	1.75	1.75	1.80
Steel Bars, Pittsburgh .....	1.60	1.60	1.60	1.60
Tank Plates, Tidewater .....	1.85	1.85	1.95	1.78
Tank Plates, Pittsburgh .....	1.60	1.60	1.60	1.60
Beams, Tidewater .....	1.75	1.75	1.75	1.85
Beams, Pittsburgh .....	1.60	1.60	1.60	1.70
Angles, Tidewater .....	1.75	1.75	1.75	1.75
Angles, Pittsburgh .....	1.60	1.60	1.60	1.60
Skelp, Grooved Iron, Pittsburgh .....	2.00	2.00	2.00	1.95
Skelp, Sheared Iron, Pittsburgh .....	2.05	2.10	2.10	2.00
Sheets, No. 27, Pittsburgh .....	2.65	2.65	2.65	3.00
Barb Wire, f.o.b. Pittsburgh .....	2.60	2.60	2.60	2.90
Wire Nails, f.o.b. Pittsburgh .....	2.00	2.00	2.00	2.05
Cut Nails, Mill .....	2.15	2.15	2.10	1.95
<b>METALS:</b>				
Copper, New York .....	14.50	15.00	14.50	12.00
Spelter, St. Louis .....	5.40	5.40	5.00	4.20
Lead, New York .....	4.65	4.65	4.35	4.10
Lead, St. Louis .....	4.57½	4.57½	4.22½	4.02½
Tin, New York .....	29.25	30.00	30.55	26.40
Antimony, Hallett, New York .....	7.00	7.00	6.75	8.00
Nickel, New York .....	40.00	40.00	40.00	50.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York .....	3.99	3.99	3.99	4.19

\* Foreign.

## Chicago.

FISHER BUILDING, April 8, 1903.—(By Telegraph.)

The Pig Iron market has been weaker and unsettled, buyers being more determined than ever to hold off from placing contracts for the latter part of the year until they are in possession of more facts, the feeling prevailing that as low prices will be made for this section as for the Eastern seaboard. Charcoal and Bessemer Iron have already declined, and local Iron is held at previous prices only because of the scarcity. There has been a marked increase in the supply of Coke for both foundry and furnace purposes, and more ample supply of cars for the distribution of Finished Iron products. The opinion prevails that progress has been made in the settlement of labor difficulties, and although molders and machinists have demanded increased wages, or an equivalent in shorter hours, a satisfactory adjustment seems probable before May 1. There has been a fair movement of Steel Bars and a good inquiry for Bar Iron, although the higher prices necessarily asked check trading to some extent. The placing of orders for about 3500 Steel gondola cars has been the important feature in Structural Material, and contracts for about 10,000 tons of bridge material are pending. There have been several relatively small contracts for local buildings placed. A fair demand for Plates and Sheets has been experienced, an active demand for Wrought Pipe and a few contracts placed for the season's requirements of Merchant Steel. Rails and Track Supplies have been less active, although there has been a fair inquiry, especially for Light Sections.

**Pig Iron.**—The market is unsettled. The lower price authorized by the Southern producers have encouraged buyers to hold off from placing contracts for the latter half of the

year and have induced little purchasing for the remainder of the second quarter. The policy of making one price for the Eastern seaboard and another for the interior seems to melters an inequitable arrangement, and they believe that sooner or later they will be able to purchase on the same basis as Eastern consumers, the motive for the reduction of prices by furnaces not appealing in any sense to buyers in this section. With a full supply of Coke and more cars available for the shipment of both Pig and manufactured product, the situation is assuming a more normal aspect, giving the melters an ample supply of Iron on previous contracts to meet current wants, relieving them of the necessity of purchasing spot Iron, and resulting in little if any premiums being obtained for prompt shipments of Iron. It is significant, however, that while buyers generally refuse to pay \$17.50 for the second half of the year, purchasers on the basis of \$16.50 have been turned down by producers, one contract of 2000 tons of No. 2 Foundry having met this fate in the past few days. Sales for April, May and June shipment have been made on the basis of \$17.50, and it is difficult to obtain any advance over this price. Bessemer iron, both Malleable and Standard, has weakened perceptibly, reflecting the decline of Foundry grades in the South, and sales of 3000 tons of Malleable Bessemer have been made at \$21.85, and 3000 tons ditto at \$22, Chicago, for delivery during the last half of the year. It is difficult to sell either Malleable or Standard Bessemer above these prices for delivery during the balance of the second quarter. Charcoal Iron also has been affected by the decline in Coke grades, sales of single car lots having been made at 50c. under previous prices, ranging from \$25.50 to \$26.50, delivered, Chicago. Prices of local Iron are little better than nominal, there being little, if any, available for the current market, and furnaces indisposed to make lower prices for the last half of the year up to the present time. There have been exceptional transactions in Foundry grades for the last half in lots of 500 to 1000 tons each, aggregating about 3000 tons, said to have been made on the basis of \$17.50 for No. 2, Birmingham, but the Iron sold has been of the lower grades. Silvery Iron has also been sold at a decline of 50c. per ton, being on the basis of \$19.50, Birmingham, for 4 to 6 per cent. It should be noted that there is little, if any, difference now in prices current for the remainder of the second quarter and for the last half of the year, the outside prices covering single cars for prompt shipment. The following are the prices current, f.o.b. cars, Chicago:

Lake Superior Charcoal.....	\$25.50 to \$26.50
Local Coke Foundry, No. 1.....	23.00 to 23.50
Local Coke Foundry, No. 2.....	22.50 to 23.00
Local Coke Foundry, No. 3.....	22.00 to 22.50
Local Scotch, No. 1.....	23.50 to 24.50
Ohio Strong Softeners, No. 1.....	25.80 to 26.80
Southern Silvery, according to Silicon.....	23.85 to 25.85
Southern Coke, No. 1.....	22.35 to 22.85
Southern Coke, No. 2.....	21.85 to 22.35
Southern Coke, No. 3.....	20.85 to 21.35
Southern Coke, No. 1 Soft.....	22.35 to 22.85
Southern Coke, No. 2 Soft.....	21.85 to 22.35
Foundry Forge.....	20.35 to 20.85
Southern Gray Forge.....	19.35 to 19.85
Southern Mottled.....	19.35 to 19.85
Southern Charcoal Softeners, according to Silicon.....	25.85 to 27.85
Alabama and Georgia Car Wheel.....	27.35 to 28.35
Malleable Bessemer.....	21.85 to 22.25
Standard Bessemer.....	22.00 to 22.25
Jackson County and Kentucky Silvery, 6 to 8 per cent. Silicon.....	31.30 to 32.30

**Bars.**—The active inquiry for Bar Iron from car builders, railroads and agricultural implement manufacturers has not resulted in the placing of a heavy tonnage, although there has been a fair volume of business, several 1000-ton orders having been placed for delivery extending into the fall, and there are several important orders, ranging from 2000 to 5000 tons each, for delivery during the season. The increased cost of production resulting from higher raw material and increased labor wages has produced a firmer feeling and prevented concessions which have been made heretofore, sales being mainly at 1.85c. to 1.90c., base, Chicago. For Soft Steel Bars there has been a fair inquiry and sales thus far in April aggregate about 20,000 tons, mainly for delivery during the next six months, with one or two small contracts extending over into next year for the entire season. The jobbing trade has been quite active. The following are the prices current, f.o.b. Chicago, mill shipment: Bar Iron, 1.85c. to 1.90c.; Soft Steel Bars, 1.76 $\frac{1}{2}$ c. to 1.86 $\frac{1}{2}$ c.; Hoops, 2.16 $\frac{1}{2}$ c. to 2.26 $\frac{1}{2}$ c.; Angles, under 3 inches, 1.86 $\frac{1}{2}$ c. to 1.91 $\frac{1}{2}$ c., base. Jobbers have experienced a good demand for less than carload lots and a firm tone has continued to characterize the market without change in prices, which are as follows: Bar Iron, 2.15c.; Soft Steel Bars, 2c. to 2.25c.; Angles, 2.25c., and Hoops, 2.40c., base, from store.

**Structural Material.**—In some respects the outlook has improved materially within the past few days, it being reported that labor difficulties are on the verge of satisfactory settlement, and when this is generally known a larger tonnage of Structural Material will doubtless be placed. It is known that contracts for about 10,000 tons for railway bridges, mainly in the West, are pending, and during the week contracts for 3500 Steel gondola cars have been placed. Steel for

three or four small local structures has been sold within the past week, aggregating about 2000 tons. One of the most important features is that some of the largest independent mills which have heretofore reported premiums for early shipment now advise that they are able to make prompt shipment at the official prices without any premium. The following are the prices current at Chicago for mill shipment: Beams, Channels and Zees, 15 inches and under, 1.75c. to 1.90c.; 18 inches and over, 1.85c. to 2c.; Angles, 1.75c. to 1.90c. rates; Tees, 1.80c. to 1.90c.; Universal Plates, 2c. to 2.25c. Shipments from local stock have continued quite satisfactory and the market has ruled strong at full prices, as follows: Beams and Channels, 2 $\frac{1}{4}$ c. to 2 $\frac{1}{2}$ c.; Angles, 2.25c. to 2.50c.; Tees, 2.30c. to 2.55c., at local yards.

**Plates.**—Specifications on old contracts continue quite liberal, but the new tonnage offering has not been large, only about 2000 tons having been sold during the week. The most important mills are sold into the fall months and are not encouraging buyers for nearby delivery. However, the following are the prices current, f.o.b. cars, Chicago, mill shipment: Tank Steel,  $\frac{1}{4}$ -inch and heavier, 1.75c. to 2c.; Flange, 1.85c. to 2.10c.; Marine, 1.95c. to 2.10c. There has continued to be good demand from local stocks and the market has remained firm with full prices realized. The following are the prices current: Tank Steel,  $\frac{1}{4}$ -inch and heavier, 2.15c. to 2.20c.; Tank Steel, 3-16-inch, 2.25c. to 2.30c.; No. 8, 2.30c. to 2.40c.; Flange Steel, 2.40c. to 2.50c., all f.o.b. warehouse, Chicago.

**Sheets.**—There has continued to be a fair demand for Black Sheets and most of the mills, both combination and independent interests, are well sold, some of them from four to eight weeks ahead, the result being a firm market. The following are prices current for Black Sheets, mill shipment, carload lots, f.o.b. Chicago: No. 10, 2.12 $\frac{1}{2}$ c. to 2.16 $\frac{1}{2}$ c.; No. 12, 2.22 $\frac{1}{2}$ c. to 2.26 $\frac{1}{2}$ c.; No. 14, 2.32 $\frac{1}{2}$ c. to 2.36 $\frac{1}{2}$ c.; No. 16, 2.42 $\frac{1}{2}$ c. to 2.46 $\frac{1}{2}$ c.; Nos. 18 and 20, 2.56 $\frac{1}{2}$ c. to 2.60 $\frac{1}{2}$ c.; Nos. 22 and 24, 2.66 $\frac{1}{2}$ c. to 2.70 $\frac{1}{2}$ c.; No. 26, 2.76 $\frac{1}{2}$ c. to 2.80 $\frac{1}{2}$ c.; No. 27, 2.86 $\frac{1}{2}$ c. to 2.90 $\frac{1}{2}$ c.; No. 28, 2.96 $\frac{1}{2}$ c. to 3.00 $\frac{1}{2}$ c. Small lots from store sell at 15c. to 20c. above mill prices. Galvanized Sheets have continued to sell fairly well and the market has remained firm at 75 and 5, Chicago, for mill shipment, with concessions made in exceptional instances only. Sales from store continue to be made on the basis of 75 and 2 $\frac{1}{2}$  to 75 discount.

**Cast Pipe.**—Among the more important sales made during the week was a lot of 10,000 tons of larger sizes of Water Pipe at St. Louis, and 5000 tons of Gas Pipe. There is some inquiry for small lots of smaller sizes, but in the aggregate only moderate. Prices remain unchanged on the basis of previous quotations, which are as follows, f.o.b. Chicago: 4-inch, \$34; 6-inch, \$33; 8-inch, and larger, \$32 for Water and \$1 per ton higher for Gas Pipe.

**Billets.**—There are few Billets, either of domestic or foreign production, available, and prices are entirely nominal, trading being confined to jobbing lots of Open Hearth Forging Billets, which continue to sell at \$34 to \$38, according to analysis, buyer and time of delivery, with exceptional transactions at little higher prices.

**Merchant Pipe.**—The movement on Pipe on previous orders has continued active and quite a number of new orders have been placed. Although single transactions have not been large the aggregate has been considerable and the market remains strong. The jobbing trade has been very active. The following is the official schedule of discounts for carload lots, Chicago, base, random lengths, mill shipments:

	Steel Pipe.		Guaranteed Wrought Iron.	
	Black.	Galvd.	Black.	Galvd.
$\frac{1}{4}$ to $\frac{3}{8}$ inch.....	Per cent. 68.35	Per cent. 58.35	Per cent. 63.35	Per cent. 53.35
$\frac{1}{2}$ inch.....	68.35	58.35	63.35	53.35
$\frac{3}{4}$ to 6 inches.....	73.35	63.35	70.35	60.35
7 to 12 inches.....	67.35	57.35	64.35	54.35
Less than carloads, 12 $\frac{1}{2}$ per cent. advance.				

**Boiler Tubes.**—There has been a fair volume of business and the market has remained firm at the previous range of prices. The following schedule of discounts for carload lots, mill shipment, Chicago, is being maintained:

	Steel.	Iron.
1 to 1 $\frac{1}{2}$ inches.....	43.35	38.35
1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ inches.....	55.85	35.85
2 $\frac{1}{2}$ to 5 inches.....	60.85	45.85
6 inches and larger.....	55.85	35.85
Less than carloads, 12 $\frac{1}{2}$ per cent. advance.		

There has been a fair degree of activity from second hands, the market remaining firm as previously quoted. The following are the discounts prevailing for shipment from local stocks:

	Steel.	Iron.
1 to 1 $\frac{1}{2}$ inches.....	40	35
1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ inches.....	50	32 $\frac{1}{2}$
2 $\frac{1}{2}$ to 5 inches.....	57 $\frac{1}{2}$	42 $\frac{1}{2}$
6 inches and larger.....	50	..

**Merchant Steel.**—One or two small additional contracts for Agricultural Shapes, covering the season's requirements, have been placed during the week, and there has also been a fair demand and the market has remained steady. The following are the prices current at Chicago for mill shipments: Smooth Finished Machinery Steel,



2.01½c. to 2.11½c.; Smooth Finished Tire, 1.96½c. to 2.11½c.; Open Hearth Spring Steel, 2.66½c. to 2.76½c.; Toe Calk, 2.31½c. to 2.46½c.; Sleigh Shoe, 1.86½c. to 1.96½c.; Cutter Shoe, 2.41½c. to 2.61½c. Ordinary grades of Crucible Tool Steel are quoted at 6½c. to 8c. for mill shipment; Specials, 12c. upward.

**Rails and Track Supplies.**—While there has continued to be a fair inquiry for both Standard and Light Sections, the volume of business placed during the week has been relatively small, aggregating between 3000 and 4000 tons only. Official prices remain strong at \$28 for Standard and \$27 for second quality, mill shipment. Light Rails have continued to range from \$35 to \$40, according to weight. The demand for Track Supplies has continued active, but it is understood that the capacity of some of the large independent interests is far from being sold, even for early shipment. The following are the prices current at Chicago for mill shipment: Splice or Angle Bars, 2c. to 2.25c.; Spikes, 2.10c. to 2.25c.; Track Bolts, 3½ to 3¾ inches and larger, with Square Nuts, 2.85c. to 3c.; with Hexagon Nuts, 3c. to 3.25c. From store 10c. to 15c. over mill prices are asked and obtained.

**Old Material.**—There has been a further strengthening of the market, with only moderate offerings, and a good demand from both rolling mills and Steel furnaces. There has been an especially good inquiry for Old Steel Rails, and little higher prices have been obtained. Iron Fish Plates also have sold at an advance, and Railroad Malleable has risen about 50c. per ton. Old Car Wheels are still scarce and Heavy Relaying Rails are in better demand and firmer in tone. The following are the prices per gross ton, Chicago:

Old Iron Rails.....	\$24.50 to \$24.75
Old Steel Rails, mixed lengths.....	18.50 to 19.00
Old Steel Rails, long lengths.....	22.00 to 22.25
Heavy Relaying Rails.....	31.50 to 32.00
Old Car Wheels.....	24.00 to 24.50
Heavy Melting Steel Scrap.....	18.25 to 18.50
Mixed Steel.....	16.00 to 16.50

The following quotations are per net ton:

Iron Fish Plates.....	\$21.50 to \$22.00
Iron Car Axles.....	24.50 to 25.00
Steel Car Axles.....	23.50 to 24.00
No. 1 Railroad Wrought.....	20.50 to 21.00
No. 2 Railroad Wrought.....	18.25 to 18.75
Shafting.....	20.00 to 21.00
No. 1 Dealers' Forge.....	16.50 to 17.00
No. 1 Bushing and Wrought Pipe.....	14.00 to 14.50
Iron Axle Turnings.....	14.50 to 15.00
Soft Steel Axle Turnings.....	14.50 to 14.75
Machine Shop Turnings.....	14.25 to 14.75
Cast Borings.....	10.25 to 10.50
Mixed Borings, &c.....	10.50 to 11.50
No. 1 Boilers, cut.....	14.50 to 15.00
Heavy Cast Scrap.....	18.00 to 18.50
Stove Plate and Light Cast Scrap.....	13.50 to 14.00
Railroad Malleable.....	16.50 to 17.00
Agricultural Malleable.....	15.50 to 16.00

**Metals.**—The Copper market has been unsettled, lower prices having been made during the week in the East and reflected in this market. It is understood that the lower prices were made only for off Metal, and the buyers of large quantities of Standard grade could not purchase under previous prevailing prices. Lake is held at 14¾c. to 15c. in carloads and a fraction higher is obtained in a jobbing way. Pig Lead has remained strong, and while the smelters are reported to have made shipments of accumulated stock, they are still sold ahead, and important inquiries at this point are referred to New York. Official quotations remain at 4.60c. in 50 to 100 ton lots and 4.62½c. to 4.65c. in carload lots. Spelter has fluctuated more than usual, but at the close the market is steady, on the basis of 5.40c. for Slabs in carload lots. Sheet Zinc has remained firm at 6¾c., Chicago. Old Metals have reflected the unsettled feeling at primary markets, but at the close the market has a little more confident tone and prices are as follows: Heavy Cut Copper is now selling at 12½c.; Red Brass at 13c.; Copper Bottoms at 11¼c.; Lead Pipe at 4.35c., and Zinc at 4.25c., spot.

**Coke.**—Shipments into this market have been liberal of all kinds, furnaces now being well supplied and Foundry Coke being in excess of the demand, the result being that lower prices have been accepted. Sales of single car lots of Virginia Coke are made at \$8.50 to \$9, and Connells-ville at \$9 to \$9.50, spot, track, Chicago, but it is difficult to make sales even at these figures, both furnaces and foundries having received ample supplies on contracts.

## Philadelphia.

FORREST BUILDING, April 7, 1903.

A notable change has come over the Iron markets during the past few days. From a condition of firmness and activity there is a change to weakness and uncertainty. The dollar or so per ton reduction is not an important matter in itself, nor would another similar reduction be very serious either, but the uncertainty generated by a change to lower prices is a difficult matter to deal with. Consumers seem to never stop buying on a rising market, but the moment it turns in the other direction there is hardly a limit to their

caution. Under these circumstances it is reasonably certain that the demand will be greatly reduced during the next few weeks, during which period prices perhaps may find a still lower level. This, however, need not affect consumption in the least, as heavy deliveries will be made on old contracts, and until they are completed new buying can be postponed almost indefinitely. It is important to note the reduction in prices is not for the purpose of realizing on an accumulation of stock, but to guard against a contingency of that kind by checking imports from other countries. There is nothing to show that consumption is falling off, but there are indications of larger supplies, and if, in addition to this, labor troubles or other setbacks should be met with, accumulations might under such conditions become dangerous. From this point of view the reduction in prices was a wise precaution, but there is no doubt that the immediate effect is decidedly chilling. People have got so used to firm prices and more or less difficulty in securing deliveries that they can hardly realize that the order of things is reversed. There is nothing in the outlook to suggest any serious change in business conditions, although it is not impossible that \$18 or \$20 Iron may be seen for the last half of the year, and if it can be held at that the situation will be safer than it would at \$21 or \$22. It is only a question of time anyway when Pig Iron must get nearer to its normal quotations than it has been during the past two or three years. Last week this article mentioned that the average price of No. 2 X Foundry for ten years from 1883 to 1892 inclusive was \$18.50, and from 1893 to 1902 it was \$15, and the average for 20 years \$16.75. It is clear therefore that there is still room for a considerable drop if there is to be return to old time prices. It is not a good feature to find a drooping tendency in Finished Material, showing as it does that the output at the mills is quite ample for all current requirements. It is rather a coincidence that at this date one year ago prices of Finished Material were practically the same as they are to-day, but it was hard to get deliveries without paying more or less of a premium. Pig Iron, however, was a dollar per ton lower than it is to-day, but was scarce and prompt deliveries were at a small premium.

**Pig Iron.**—The drop in Southern Pig Iron has had a somewhat chilling effect, although it was not altogether unexpected, and may in the long run be a good thing for the market. It has been the opinion of conservative people for some time that prices were too high, and that a reduction of \$2 or \$3 per ton would do no harm, providing that the market could be held on a decline of that kind. It is a little too soon to say what the effect of last week's action will be, except that for awhile it will check the demand. Even that need do no harm, as consumption will go on just the same. Metal will be needed as much as ever, and if new orders are not placed now, they will have to be placed as soon as old contracts are completed, and in the interim it will give the market a chance to clarify itself. The one certain thing will be that foreign Iron will not be brought in to the extent that it was during last year. Arrivals during the next few weeks will be heavy, but with the possibility of having to compete with lower prices than are quoted to-day, new purchases will not be made at anything like the figures ruling at the present time. This may not apply to material for Steel making, but in all probability very little new business will be done on either side of the water until the situation is more fully developed. At the moment it is difficult to give exact quotations, but the range for city or nearby deliveries is about as follows:

No. 1 X Foundry.....	\$22.50 to \$23.00
No. 2 X Foundry.....	21.00 to 21.50
No. 2 Plain.....	20.50 to 21.00
Gray Forge.....	19.00 to 20.00
Basic.....	19.75 to 20.25
Middlesbrough, No. 3.....	20.50 to 21.00
Scotch.....	22.00 to 23.50

Cargo lots, c.i.f.:

Low Phosphorus, 0.035.....	\$21.25 to \$21.50
Bessemer.....	20.25 to 20.50
Middlesbrough, No. 3.....	18.50 to 19.00

**Billets.**—There is not much doing, although prices are a shade easier on domestic Steel. Foreign is firm at about \$28.50 to \$29, but shipments are subject to delays, so that business is not easily arranged, either for foreign or American Steel.

**Plates.**—The prominent feature is the desire to capture large orders for extended deliveries. Orders of this class can be done at about 1.85c., but small lots command 1.95c., with quite a good demand from the smaller consumers. The volume of business in the aggregate is quite large, but there is rather close competition; hence the willingness to make concessions when the tonnage is sufficiently attractive. Ordinary quotations are about as follows for nearby deliveries: Small lots, 2c. to 2.05c.; carload lots, ¼-inch and thicker, 1.85c. to 1.90c.; Universals, 1.90c.; Flange, 2.10c.; Marine, 2.15c. to 2.20c.; Fire Box, 2.25c. to 2.30c.

**Structural Material.**—Owing to the unsettled condition of labor, business in this department is rather slow, and deliveries can be made with more promptness than for months past. Prices are easy at the Combination figures, premiums for prompt deliveries not being required at the present time.

Quotations for Beams, Angles or Channels, ordinary sizes, 1.73½c. to 1.78½c., carload lots, as a minimum, with the usual addition for smaller quantities.

**Bars.**—The market is easy, although there is a fair demand, but specifications come in rather slowly, so that there is no trouble in getting prompt shipments. This applies to Steel Bars as well as to Iron, so that prices are easy, although pool quotations are said to be maintained, except by a few outside mills. The usual rates are 1.93½c. to 1.95c. for Refined Iron in carload lots as a minimum, and 1.73½c. to 1.85c. for Steel, the latter for Basic Open Hearth, the former for Ordinary Soft Steel. The monthly meeting of the Eastern Bar Iron Association will probably not be held on Friday of this week, but may be held the week following.

**Sheets.**—There is a good demand, and in this department prices are firm with prospects of a heavy business during the next few months.

**Old Material.**—Scarcity is the leading feature, and although consumers claim that prices are out of proportion with finished products, holders seem to get pretty well up to the outside figures, which are as follows for deliveries in buyers' yards:

Old Steel Rails.....	\$21.50 to \$22.00
Heavy Steel Scrap.....	20.75 to 21.50
Low Phosphorus Scrap.....	27.50 to 28.00
Old Steel Axles.....	26.00 to 27.00
Old Iron Rails.....	25.00 to 25.50
Old Iron Axles.....	30.00 to 31.00
Old Car Wheels.....	24.50 to 25.00
Choice Scrap, R. R. No. 1 Wrought.....	24.00 to 24.50
Country Scrap.....	21.00 to 22.00
Machinery Scrap.....	20.00 to 21.00
No. 2 Light Scrap.....	18.50 to 19.50
No. 2 Light (Ordinary).....	14.00 to 15.00
Wrought Turnings.....	16.50 to 17.00
Wrought Turnings, Choice Heavy.....	17.50 to 18.00
Cast Borings.....	11.50 to 12.00
Stove Plate.....	15.00 to 16.00

## Cincinnati.

FIFTH AND MAIN STS., April 8, 1903.—(By Telegraph.)

The Pig Iron market during the past week has taken on a somewhat firmer tone, and is being watched with a great deal of interest. The lowering of No. 2 Foundry from \$18.50 to \$17.50, Birmingham, and Gray Forge from \$17.50 to \$16, same basis, by the Southern Association furnaces, has had the effect of checking any active buying that might otherwise have developed, on account of further reductions being feared in the near future. Actual business transacted during the week has been comparatively light, though orders for considerable Basic and Charcoal brands as well as irregular grades have been booked by the various agents at this point. Most of the shipments now going forward are on old contracts, and very little movement is reported of Iron being sold for the last half. Freight rates from Birmingham to Ohio River points \$3.25. We quote, f.o.b. in Cincinnati, for delivery throughout the year, as follows:

Southern Coke, No. 1.....	\$20.75 to \$21.25
Southern Coke, No. 2.....	20.25 to 20.75
Southern Coke, No. 3.....	19.75 to 20.25
Southern Coke, No. 4.....	19.25 to 19.75
Southern Coke, No. 1 Soft.....	20.75 to 21.25
Southern Coke, No. 2 Soft.....	20.25 to 20.75
Southern Coke, Gray Forge.....	19.00 to 19.50
Southern Coke, Mottled.....	19.00 to 19.50
Ohio Silvery, No. 1.....	30.15 to 31.15
Lake Superior Coke, No. 1.....	23.15 to 24.15
Lake Superior Coke, No. 2.....	22.15 to 23.15
Lake Superior Coke, No. 3.....	21.15 to 22.15

### Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$28.25 to \$29.25
Lake Superior Car Wheel and Malleable.....	27.50 to 28.50

**Plates and Bars.**—We quote, f.o.b. Cincinnati, as follows: Iron Bars in carload lots, 1.92c., with half extras; same, in small lots, 2.20c., with full extras; Steel Bars, carload lots, 1.73c., with half extras; same, in small lots, 2.20c., with full extras; Plates, 4-inch, in carload lots, are still nominally 1.70c.; 3-16 inch, 1.80c.; Beams and Channels, 1.70c., base.

**Old Material.**—We quote dealers' buying prices as follows, f.o.b. Cincinnati: No. 2 Wrought Railroad Scrap, \$20 per net ton; Cast Scrap, \$17.50 per net ton; Iron Rails, \$23 per gross ton; Long Steel Rails, \$22.50 per gross ton; Short Steel Rails, \$18 per gross ton; Iron Axles, \$28 per net ton; Car Wheels, \$24 per gross ton; Low Phosphorus Steel, \$25.50 per gross ton; Heavy Melting Steel, \$22 per gross ton.

## Birmingham.

BIRMINGHAM, ALA., April 6, 1903.

The first two days of last week, just prior to the announcement of lower values, the market gave every indication of an improved condition. The inquiry had increased, and prices that buyers declined to pay the preceding week were being accepted. When it was known on the morning of the 1st that lower prices would be accepted, it was a great surprise to those who were not behind the scenes; and

it caused an important element of the trade, that was ready to buy, to halt until convinced that there would be no further slump. The meeting at which the Iron men determined to lower prices was held on March 28, and every participant was solemnly pledged to secrecy; and the secret was well kept.

Your correspondent knew of the meeting, and arranged, as he thought, to obtain the result, if any important action was taken. But the effort terminated in a snipe hunt, in which the correspondents held the bag and the Iron men drove the snipe into it. There is a reason for all things, and the reason for this action was that Southern makers were out of parity on prices, and it was thought best to establish a uniform value and encourage renewed and steady buying. The trade is divided as to the wisdom of the action. Those who advocated the change pointed to the fact that Northern Irons were \$1 lower than our prices and were taking the business, while foreign Iron was obtaining a foothold in not only the Eastern States, but was invading Western territory. The reduction puts us on a parity with Northern Iron, and gives us a slight advantage over foreign Iron. The price of \$16.50 for No. 2 Foundry obtains in the buying territory east of a north and south line drawn through Pittsburgh and including that city. In the territory west of that line the price is \$17.50, Birmingham; No. 3 Foundry, \$17; No. 4, \$16.50; Gray Forge, \$16; Mottled Iron, \$15.50, and White Iron, \$15. No. 1 Foundry is \$18. The soft grades are equal in price to the corresponding foundry grades.

Since the decline in price business has been very fair. Some large interests have taken very respectable amounts and local buyers have entered the market to supply their needs for the first half of the year, which action they have been postponing. Several lots of 1000 and 1500 tons were taken, but the purchases were mostly for the first half of the year. There has been no business of magnitude yet for the second half, and that is the business that the producer is aiming to foster. The larger interests say that trade has been very satisfactory since the decline in prices. But somebody is cutting values, as your correspondent learns of at least one sale of No. 2 Foundry at \$16, and was assured that more could be obtained. Before the decline was announced there were sales of No. 2 Foundry at \$18.25 and \$18; and of No. 3 Foundry at \$17.25. There were sales of all the grades at the changed prices, but it is too early yet to say what will be the effect on business of the changed conditions.

The situation in regard to cars has very much improved. They are now furnished in increasing numbers, and shipments have correspondingly increased. It is estimated that the Iron available for prompt and nearby business is materially less than 40,000 tons. It would not require a big spur to absorb that.

In Coal and Coke there is no change in the situation. The outside price for Coke is yet \$6, and Coal brings irregular but good prices; in some cases being \$2 at the mines. New properties are being opened, and the inquiry for desirable Coal propositions have not diminished a particle. Operations are limited to the labor that can be obtained.

There has been a change in the official family of the Sloss-Sheffield Steel & Iron Company, J. W. McQueen having been promoted to the position of a vice-president. This promotion relieves him from much of the routine work of the company and concentrates his attention and duties to the sales department as well as giving him more time to devote to the general management. It goes without saying that his promotion was fairly earned; and proves the truth of the saying that there's always room at the top for faithful service and proved ability. E. L. Morris, who has been in the service of the company several years, has been made secretary and treasurer as a reward for faithful service and ability displayed. The president, J. C. Maben, will sail for Europe this week, and during his absence of two months or more the management of the affairs of the company will devolve principally upon Mr. McQueen.

A charter has been granted to T. H. Aldrich and associates for the establishing of a light and power company, furnishing electric light and power, as well as gas for domestic purposes. A by-product plant will be installed and the gas from that will be utilized to make the electricity. A large surplus of gas will be available for distribution for domestic purposes. A battery of 150 Coke ovens will start the enterprise; and it will require the expenditure of \$300,000 before it can commence operations. The city was paid \$7500 for the franchise, and is safeguarded against selling out or merging.

A new bank, the American Trust & Savings Company, has been established, with a capital of \$500,000, absorbing the Birmingham Savings Bank. G. B. McCormack, the former manager of the Tennessee Company, is the president. Special attention will be paid to the trust business. Since the year opened no less than 43 corporations have filed their papers representing over \$1,000,000 capital. One increased their capitalization \$300,000, another \$150,000, while the Moore & Handley Hardware & Mfg. Company incorporated with \$150,000 capital. The Hardie-Tynes Company have



changed their name to Hardie-Tynes Mfg. Company, and increased their capital to \$200,000. Other increases are in contemplation. The Siluria Cotton Mill Company have broken ground for the erection of their mill at Siluria, a short distance south of us. It will have 10,000 spindles and 200 looms, and will consume about 2500 bales of cotton.

Many months ago these letters announced that the Southern Railway Company would buy a certain piece of property and erect a depot of their own. The matter has hung fire until this past week, when the trade was concluded. Its location precludes the idea that it was obtained for any other purpose. The price paid was \$167,500, and its location is near that of the Union Passenger Depot. There can be no doubt, now, concerning the advent into this district of the Illinois Central Road, but one cannot announce it on authority. The Seaboard Line is at work here grading and tracking, and it has under contract now almost the entire line to Atlanta. That we are fast reaching a prominent position as a railroad center is evidenced by the fact that the Southern has moved the headquarters of its western division from Chattanooga to this city. Transactions in real estate have largely increased of late and prices seem to be no bar to activity. We are forging ahead at a constantly accelerating speed.

(By Telegraph.)

So far this week inquiries and sales of Iron have materially increased, and prices recently established are being pretty uniformly maintained. The market here looks healthy, and increasing business is anticipated.

## Cleveland.

CLEVELAND, OHIO, April 7, 1903.

**Iron Ore.**—The Straits of Mackinac have been open for ten days and it is daily expected that the opening of the Soo passage will be declared. The boats, however, cannot move and the situation is complicated. The vessel interests had been ready to accept a compromise rate offered by the shippers before the strike of the firemen and oilers was declared, but now they are more obstinate than ever, demanding every possible concession from the shippers. An ineffective effort was made last week to bring the strike to a close and the only hope now is to wear it out. The shippers are not offering more than 85c. from Duluth to Ohio, and the vessel men have withdrawn all offers of any sort until they know what length the season of navigation will be. The movement of Ore away from the dock stock piles has continued lively, but the railroads are hampered and it is feared that the present equipment embarrassment will last through the summer. The Ore left on the docks at the opening of navigation, April 1, exceeds anything in the history of the lake trade.

**Pig Iron.**—The development in Foundry Iron for the past week has been in business for the first half, whereas lately most of the buying has been for second half delivery. It is now in big demand for first half consumption, and the sales are numerous but the amounts are small. The valley furnaces have nothing to offer, and all of the Iron is coming from Southern Ohio, the Birmingham district or Virginia. The prices for the first half have not changed, the quotation on No. 2 being \$22, f.o.b. Southern Ohio Furnace, to which is added a freight of \$1.45 to make the Cleveland price. The buying for second half delivery has been limited. The expected increase in the tonnage on the books has not come, and the buying period is still in future. The inquiries are heavy enough to denote a good volume of trade in prospect, but actual transactions have been few. Prices for second half are \$21 to \$21.50 for No. 2, Valley furnace. The buying of Basic Iron for first half is limited by the supply. Many of the mills are delayed by the lack of Basic, and while there has been some talk of going abroad to supply the deficiency nothing in this direction has been done. The buying for second half has not been very brisk. Quotations are \$21.50 to \$22, Valley furnace, for first half and \$20 for second half. The Bessemer situation has not been active enough to really create a market for the last few weeks. There has been some talk of further orders being placed, but nothing of a definite nature has developed. Prices are continued at \$21.50, Valley furnace, for first half and \$20.50 to \$21 for second half, these quotations being understood to be merely nominal. The railroad situation is uncertain. The withdrawal of embargoes is bringing out more trade than was expected, and the railroad equipment is not living up to the looked for performance.

**Finished Iron and Steel.**—Rail sales have again begun to attract attention. During the past week one order for 4000 tons was closed by Cleveland sales offices, besides a number of smaller sales. In addition there are inquiries in for a good supply of Rails for electric lines, and it is expected that the orders will be placed before this week is out. There is a good call for the Lighter Rails and the market is steady and strong. Prices are as follows: Standard Rails in lots of over 500 tons, \$28, Pittsburgh; in lots of less than 500 tons, \$30, Pittsburgh, and for Light Rails, \$36, Pittsburgh, for any quantity. The demand for Structural Steel

seems to have gained steadily during the week. A number of inquiries are in for big lots of material. The smaller mills are getting their quota of premium business, but prices are not quite so strong as they were. The quotations are about as follows: Standard mills, 1.60c., Pittsburgh; small mills for any quantity, 1.70c. to 1.80c. at the mill, a new quotation; from jobbers out of stock, 2.25c., Cleveland, as a maximum. The Bar trade has been quite active. The talk of the coming meeting of the association has evidently brought in a good business, as the buying has been heavier than at any time during the spring. The frequent and persistent reports of advances had some effect. It is understood that some big orders are pending and will be closed in a very short time. Prior to the meeting to be held on Wednesday, to fix prices, the quotations for Bar Steel in this territory are unchanged, being 1.60c., Pittsburgh, for Bessemer, and 1.70c., Pittsburgh, for Open Hearth. Bar Iron is still in a peculiar state, with the material in good demand, seemingly, but with the mills not overly anxious to produce it, and consequently a strong but listless market. Those mills which make any quotations whatever have been quoting 1.85c., Pittsburgh. The Plate trade has been fairly active. The larger mills are taking some contracts for material for quick shipment, but their uncovered capacity is limited, thus leaving a considerable business to the smaller mills, which are still getting a premium that brings their price up to 2c. at the mill. The Standard mills are still asking 1.60c., Pittsburgh. In Sheets there is a constantly strengthening market, with prices inclined upward. So far there have been no advances, but all are adhering to the published lists without deviation. The volume of business covered is said to have been enormous in this territory and it is becoming now a question of deliveries. Prices are 3.10c. to 3.25c. for No. 27 Black Sheets out of stock and 1.85c. to 1.95c. at the mills. A further indication of the railroad situation is given in the almost universal complaint among the mills of inability to move the material when produced. Dispatch, indeed, seems difficult, if not altogether impossible.

**Old Material.**—The market has been firm, with prices stable. The demand for Steel Scrap has been greater than the supply, partly due no doubt to the fact that some dealers are sold short and are trying to cover, while the collectors are disposed to get all that is possible out of the urgent needs of the middlemen. General buying, however, is light. Prices remain unchanged, as follows: No. 1 Wrought, \$19.50, net; Iron Rails, \$25.50, gross; Iron Axles, \$27.50, net; Wrought Turnings, \$14.50, net; Cast Borings, \$12, gross; Car Wheels, \$22.50, gross; Heavy Melting Steel, \$20.50, gross; Old Steel Rails, \$21, gross.

## St. Louis.

CHEMICAL BUILDING, April 8, 1903.—(By Telegraph.)

**Pig Iron.**—Conditions are of a quieter order than those reported last week, although it is said the buying movement has been fairly well sustained. Quick delivery Iron is in demand and sales are being negotiated on the basis of \$17.50, Birmingham, for No. 2 Foundry. It is a fact that the principal furnaces all through the South are pretty much sold up for the first half and offerings are comparatively light, being for the most part special or off grades of Iron. Quite some new inquiry is coming to hand, several fair requirements aggregating a good tonnage being under consideration. We quote, f.o.b. St. Louis, as follows:

Southern, No. 1 Foundry.....	to \$21.75
Southern, No. 2 Foundry.....	\$21.25 to 21.50
Southern, No. 3 Foundry.....	20.75 to 21.25
Southern, No. 4 Foundry.....	20.25 to 20.75
No. 1 Soft.....	21.75 to 22.00
No. 2 Soft.....	21.25 to 21.50
Gray Forge.....	19.75 to 20.00
Southern Car Wheel.....	28.50 to 28.75
Malleable Bessemer.....	25.25 to 25.50
Ohio Silvery, 8 per cent. Silicon.....	32.50 to 33.00
Ohio Strong Softeners, No. 1.....	to .....
Ohio Strong Softeners, No. 2.....	to .....

**Bars.**—Tonnage in Iron and Steel Bars has been of fair volume the past week, better perhaps than has been the case for several weeks past. Viewed from jobbing quarters there has been advancement, with prices steady and firm. We quote, from the mills: Iron Bars at 1.85c. to 1.90c., and Steel Bars at 1.82½c. to 1.90c., half extras. Jobbers quote 2.15c., base, in round lots and 2.25c. in small lots for both Iron and Steel Bars.

**Rails and Track Supplies.**—This department of the market continues to be a very active center and mill representatives are constantly in receipt of much new demand and inquiry. Owing to the congested conditions of the mills much difficulty is being experienced to satisfy on the point of delivery. Firm prices are ruling and we quote as follows: Splice Bars at 2.05c. to 2.30c.; Bolts, with Hexagon Nuts, 3.15c. to 3.30c.; with Square Nuts, 3.05c. to 3.30c.; Spikes, 2.15c. to 2.50c.

**Angles and Channels.**—The jobbing trade are experiencing a very satisfactory volume of trade for Small Angles and Channels, and prices are very generally maintained. For this class of material 2.25c. to 2.40c. is quoted.

**Pig Lead.**—A very good volume of demand rules for

Pig Lead, and while prices have not worked higher, present offerings are said to be of a very light order. Quick delivery metal generally commands a premium, while futures rule on a basis of 4.57½c. for both Chemical and Desilverized.

**Spelter.**—Transactions in the Spelter market the past week have been in very fair volume, with continued evidence of scarcity in the supply. With the exception of spot Metal, which is entitled to a premium, 5.40c. seems to be the general quotation at this time.

## Pittsburgh.

(By Telegraph.)

PARK BUILDING, April 8, 1903.

**Pig Iron.**—The Pig Iron market is in a waiting attitude, as regards Iron for second six months' delivery, this being due to the recent reduction in prices of Southern Iron, which seems to have unsettled the market to some extent. With the high prices of Coke and Ore it does not seem that Northern Irons can go back very much, but it is possible that for the last six months' delivery prices may go off a little. Bessemer Iron for shipment up to July is held at \$21, at furnace, and for delivery over last six months a good deal of tonnage has been sold at \$20, at furnace. There is a large inquiry for Basic Iron, and we can report sales of 15,000 tons or more for July, August and September delivery at \$20, Valley furnace. Northern Forge Iron is held at about \$20.50, at Pittsburgh, but there is very little doing. Northern No. 2 Foundry for prompt delivery is about \$22.50. Pittsburgh, but for forward shipment this price could be materially shaded. Southern Irons are being offered for delivery in the Pittsburgh district on the basis of \$21.35 for No. 2, \$20.85 for No. 3, and \$20.35 for No. 4. Southern Gray Forge is being freely offered at \$19.85, Pittsburgh.

**Steel.**—The market on Steel is very firm, and heavy sales of Open Hearth Billets have been made, prices being on a sliding scale, based on the price of Bessemer Iron. Bessemer Billets for prompt delivery are held at \$30 to \$30.50 and Open Hearth Billets, ordinary carbons, at \$31, makers' mill. We note a sale of 1000 tons Bessemer Billets at \$30.25, makers' mill.

**Muck Bar.**—The market on Muck Bar is quite active, and we note sales of about 2000 tons of domestic make at \$35.50.

(By Mail.)

The immediate effect of the cut in prices on Southern Forge and Foundry Iron has been to cause buyers of Northern Irons to hold off placing contracts for delivery in last six months. Prices, however, are reasonably firm, but at the same time it is true that the furnaces have very little tonnage booked for second half delivery. It is not likely that much more, if any, foreign Iron will come into this market as prices of domestic are at a prohibitive point. There is still a scarcity of Steel and the leading interest is said to be inquiring for a round tonnage for delivery in second half. Prices of Bessemer Billets are very strong at about \$30, and Open Hearth at about \$31, maker's mill. The situation in Finished Material is very satisfactory, demand being heavy all along the line and prices firm. The car situation is steadily improving; so much so that last Sunday a number of freight crews had a holiday, being the first time the men have not worked on Sundays for some months. The favorable weather is causing outdoor work to be carried on vigorously, creating a very heavy demand for Structural Steel and other materials used for building purposes.

**Steel Rails.**—The local interest have taken a contract for about 7000 tons of Standard Steam Rails for a suburban traction line at Washington, D. C. There is an active demand for small lots of Rails, but no large contracts are being placed. We quote at \$28 at mill for Standard Sections in 500-ton lots and over.

**Ferromanganese.**—We quote English Ferro in large lots at \$50, and \$51 to \$52.50 in carloads, delivered at buyer's mill.

**Spelter.**—The market is active and prices are firm. We quote Prime Western Spelter at 5.35c. for futures and 5.40c. for spot, f.o.b. St. Louis, to which 13½c. freight should be added for Pittsburgh delivery.

**Spikes.**—Demand for Spikes is active and prices are firm. We quote Railroad and Boat Spikes at \$2.25 per keg, f.o.b. Pittsburgh.

**Muck Bar.**—There is not much inquiry for Muck Bar just now, but prices are firm. We quote domestic grades at \$35 to \$35.50, f.o.b. Pittsburgh.

**Structural Material.**—Contracts recently placed include a 12-story building for Kaufmann Brothers, in this city, about 1800 tons, and the new shops of the Standard Motive Power Company, at Canal Dover, Ohio, about 2000 tons. Demand for small lots is active and the Structural mills are filled up for months ahead, and are slow in making deliveries on 20 and 24 inch Beams. The American Bridge Company are making good progress in breaking the strike and have fully one-third of a force working on jobs where

the strikers went out. There is no change in prices and we quote: Beams and Channels up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6, 1.60c.; Zees, 1.60c.; Tees, 1.60c.; Steel Bars, 1.60c., half extras, at mill; Universal and Sheared Plates, 1.60c. to 1.85c.

**Plates.**—No change was made in prices of Plates at the meeting of the Plate Manufacturers' Association held last week. Tonnage continues heavy, and, in fact, is so large that the mills are unable to make deliveries wanted. Premiums are still paid for prompt deliveries of Plates, but not as large as some time ago. Official prices for large lots are as follows: Tank Plate, ¼-inch thick and up to 100 inches in width, 1.60c., at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine, Ordinary Fire Box, American Boiler Manufacturers' Association specifications, 1.80c.; Still Bottom Steel, 1.90c.; Locomotive Fire Box, not less than 2.10c., and it ranges in price up to 3c. Plates more than 100 inches wide, 5c. extra per 100 lbs. Plates 3-16 inch in thickness, \$2 extra; gauges Nos. 7 and 8, \$3 extra; No. 9, \$5 extra. These quotations are based on carload lots, with 5c. extra for less than carload lots; terms net cash in 30 days.

**Hoops and Bands.**—Tonnage continues heavy, and the Cotton Tie trade this year promises to be larger than ever before. Prices are firm and we quote: Cotton Ties at 88c. in 5000-bundle lots and over, and 91c. for less quantities, f.o.b. mill. Steel Hoops are 1.90c. for 250-ton lots or over, and 2c. in small lots, full extras. Bessemer Bands are 1.60c. up to No. 12 gauge, and Open Hearth 1.70c., f.o.b. mill, extras as per Steel Card.

**Iron and Steel Bars.**—We note a heavy demand for Iron Bars and a very heavy tonnage is being placed by railroads, agricultural implement manufacturers and wagon builders. Tonnage in Steel Bars is fairly heavy, but the mills could take care of a larger business, owing to the very large increase in capacity made in the past year for rolling Steel Bars. Prices are firm, and are being rigidly held on both Iron and Steel Bars for delivery in this section. We quote Iron Bars at 1.85c. to 1.90c., Pittsburgh, in carload lots and 1.95c. in small lots, half extras, as per National card. We quote Steel Bars at 1.60c., at mill. All specifications for less than 2000 lbs. of a size subject to the following differential extras: Quantities less than 2000 lbs., but not less than 1000 lbs., 0.10c. per lb. extra. Quantities less than 1000 lbs., 0.30 per lb. extra, the total weight of a size to determine the extra regardless of length.

**Sheets.**—Demand for Sheets is more satisfactory than for a long time, but is not large enough yet to give all the mills full work. Prices are firm, there being an entire absence of cutting either in Black or Galvanized Sheets. We quote as follows: Nos. 22 and 24, box annealed, one pass through cold rolls, 2.45c.; No. 26, 2.55c.; No. 27, 2.65c., and No. 28, 2.75c. These prices are for carloads and larger lots and are minimum of the market, jobbers charging the usual advances for small lots. Galvanized Sheets are now 75 and 10 off, which is equal to 3.60c. for No. 27 and 3.85c. for No. 28. These prices are for carloads and larger lots, and are f.o.b. at mill.

**Merchant Steel.**—A fair amount of tonnage is being placed, but the mills could take care of a larger business if it was to be had. The larger trade are slower this year than usual in placing season contracts. There is still some irregularity in prices, mostly on Tool Steels. We quote: Tire Steel, 1.80c. to 1.90c.; Open Hearth Steel, ordinary grades, 1.70c. to 1.80c.; Open Hearth Spring, 2.25c. to 2.35c.; Cant Hook Steel, 2.50c.; Plow Slabs, Bessemer, 2.50c.; Plow Slabs, Open Hearth, 3.75c.; Tool Steel, ordinary grades, 6½c. and upward; Cold Rolled Shafting, 42 per cent. off in less than carloads, and 47 per cent. in carloads, delivered in base territory.

**Skelp.**—The Skelp mills have a good deal of tonnage booked and are very firm in their ideas as to prices. Some of the mills have their entire output under contract up to July or longer. We quote Grooved Iron and Steel Skelp at 2c. to 2.05c., and Sheared at 2.05c. to 2.10c., f.o.b. Pittsburgh, or 2 per cent. off for cash in 30 days.

**Boiler Tubes.**—Demand for Boiler Tubes is heavy and specifications on contracts placed some time since are coming forward very freely. Discounts to consumers in carloads are as follows:

Size.	Steel.	Iron.
1 to 1½ inches inclusive.....	42½	36½
1½ to 2¼ inches inclusive.....	55½	35½
2¼ to 5 inches inclusive.....	61	45½
6 to 13 inches inclusive.....	55½	35½

**Merchant Pipe.**—The Pipe trade continues very satisfactory, demand being heavy, while prices are being more rigidly held than for a long time. On the larger sizes of Pipe, 8-inch and over, the mills are sold up for four months or longer. Discounts to consumers in carloads are as follows:

	Merchant Pipe.		Full weight		Full weight	
	Blk. Galv.	Wrought	Blk. Galv.	Wrought	Blk. Galv.	Wrought
¼, ½ and ¾.....	68	58	65	55	67	57
1.....	70	60	67	57	69	59
¾ to 6.....	75	65	72	62	74	64
7 to 12.....	69	59	66	56	70	60
					67	56



As noted last week some of the outside Pipe mills are making slightly lower discounts on Iron Pipe than are given above.

**Iron and Steel Scrap.**—There is an active demand for all kinds of Old Material and prices are very firm. Heavy Melting Stock is scarce and is now held at \$21.50 to \$22 in gross tons, small sales being reported at the latter figure. No. 1 Cast Scrap is held at \$20.25 to \$20.50 in gross tons, and No. 1 Wrought Scrap \$21 in net tons; Low Phosphorus Melting Stock is \$24.50 to \$25, gross tons; Steel Rails, short pieces, are \$21.50 to \$22, gross tons; Re-rolling Rails, \$22.50 to \$23, gross tons; Old Car Wheels, \$24, gross tons, and Cast Iron Borings, \$11.50 to \$11.75 in gross tons.

**Coke.**—Output of Coke in the Upper and Lower Connellsville regions last week was up to the average of the previous week. The car supply is fairly good, but occasional shortages still occur. Last week the Upper Connellsville region turned out 249,986 tons, and the Lower Connellsville region 50,600 tons, or a total of over 300,000 tons for both regions. There is a disposition on the part of blast furnace interests to withhold placing contracts for Blast Furnace Coke for last six months, but we are advised a few contracts have been made, prices ranging from \$3.75 to \$4 a ton at oven for strictly Connellsville Furnace Coke. Seventy-two-hour Foundry Coke for last six months brings \$5 a ton at oven. Slight premiums continue to be paid for both Furnace and Foundry Coke for spot shipment.

E. W. Summers, who has designed a new Steel car without a center sill, has opened an office in room 2212 Farmers' Bank Building, Pittsburgh.

The offices of the United States Fire Proofing Corporation have been removed from the Keystone Building to the Shannon Building, Pittsburgh.

H. G. Dravo, Iron and Steel merchant, has removed to the German National Bank Building.

### Iron and Industrial Stocks.

The course of the stock market during the past week has been disappointing to those who have been holding stocks for a long time, in the expectation of being able to sell them at better prices. Declines have occurred throughout the whole list, from gilt edged railroad securities to the most unseasoned industrials. An interesting transaction during the week was the sale at an auction, at which quite a number of good stocks were sold at satisfactory prices, of 200 shares of United States Shipbuilding common at \$1 per share, and 200 shares of the preferred at \$12 per share. These are said to be the only public transactions in these stocks since the publication of the difficulties of the underwriting syndicate. A drive was made at United States Steel stocks on Tuesday, in evident anticipation of the publication of the figures showing diminished net earnings for the first quarter of the year. Among the most important declines in prices during the week were the following: Colorado Fuel, 64¼ to 55; Crucible common, 18½ to 18, and preferred, 84 to 82; Sloss-Sheffield common, 58½ to 55½; Tennessee, 65½ to 63; Steel common, 36¼ to 35, and preferred, 86½ to 85½; Dominion Steel, 29¼ to 26. The new United States Steel 5 per cent. bonds fluctuated during the week between 86¼ and 85¼, being lower than the preferred stock, and on Tuesday they made a new low record of 84½. The heaviest transactions of the week were in Steel common and the next heaviest in Colorado Fuel.

**United States Steel Corporation.**—The quarterly report of the United States Steel Corporation, which has just been issued, shows that the net earnings for the first quarter of this year, ending March 31, were \$1,623,463 less than for the same period last year. The loss was incurred mainly in January, and it is explained that, as the statement is based entirely on orders delivered, the railroad congestion during the last few months is responsible for the decrease in earnings. The unfilled orders on the books for all manufactured products April 1, 1903, were 5,410,719 tons. The statement shows:

Net Earnings.		
	1903.	1902.
January, 1903.....	\$7,425,775	\$8,901,016
February, 1903.....	7,730,361	7,678,583
March, 1903 (estimated).....	9,500,000	9,700,000
Total net earnings after deducting each month the expenditures for ordinary repairs, renewals and maintenance of plants, also interest on bonds and fixed charges of the subsidiary companies.....	\$24,656,136	\$26,279,599
Deduct amounts set aside for the following purposes—viz.:		
Sinking funds on bonds of subsidiary companies.....	\$295,000	
Depreciation and reserve funds.....	2,809,947	
	3,104,947	
Balance of net earnings for the quarter.....	\$21,551,189	

Deduct:	
Interest on United States Steel Corporation bonds for quarter.....	\$3,800,000
Sinking fund on United States Steel Corporation bonds for quarter.....	760,000
	4,560,000
Balance.....	\$16,991,189
Dividends for the quarter on stocks of United States Steel Corporation—viz.:	
Preferred, 1½ per cent.....	\$8,929,919
Common, 1 per cent.....	5,083,025
	14,012,944

Undivided profits or surplus for the quarter.....\$2,978,245

The American Car & Foundry Company's report for the quarter ending February 28 is favorable, showing an increase of \$645,466 in net earnings, due to the extraordinary demand of the railroads for new rolling stock and other equipment. The total net earnings for the quarter were \$1,426,108, as compared with \$780,642 in the corresponding period a year ago. For the ten months ended February 28 the net earnings aggregated \$5,900,971, as compared with \$2,806,118 in the corresponding period in the preceding fiscal year, an increase of \$3,184,853.

In a circular just issued to stockholders the Westinghouse Machine Company of Pittsburgh proposes an increase of their capital stock from \$3,000,000 to \$5,000,000. The increase is needed to provide funds for the operation of the plant, for the retirement of obligations and for other corporate purposes. Stockholders of record March 25 will have the right to subscribe for the new stock at \$100 a share to an amount not exceeding two-thirds of their present holdings.

The Lackawanna Steel Company filed a certificate of increase of their capital stock from \$40,000,000 to \$60,000,000, at Albany, N. Y., on April 4. The increased stock is to be used only to convert into stock first mortgage 5 per cent. convertible gold bonds of the company. Of the former capital \$35,000,000 had been actually issued.

**Dividends.**—American Car & Foundry Company have declared a dividend of 1½ per cent. on the preferred and 1 per cent. on the common stock, payable May 1. Books close April 10 and reopen May 2.

Tennessee Coal, Iron & Railroad Company have declared a quarterly dividend of 2 per cent. on the preferred stock, payable May 1. Books close April 14 and reopen May 6.

The Harbison-Walker Refractories Company of Pittsburgh have declared a quarterly dividend of 1½ per cent. on the preferred stock, payable April 20.

The Pittsburgh Malleable Iron Company have declared a regular quarterly dividend of 2½ per cent. and an extra dividend of 2½ per cent., payable April 10.

United States Steel Corporation have declared the regular quarterly dividend of 1½ per cent. on the preferred stock, payable May 15, and 1 per cent. on the common stock, payable June 30. Books for preferred stock close April 25 and reopen May 16; common stock close June 9 and reopen July 1.

The Pennsylvania Light, Heat & Power Company have declared the regular quarterly dividend of 1½ per cent., payable April 4 to stockholders of record March 31.

**The McClure Company.**—The McClure Company of Pittsburgh, owning and operating the Washington Charcoal Iron and Tin Mills, at Washington, Pa., are making some large additions to their plant, consisting of a building 80 x 100 feet, in which will be installed a number of puddling furnaces. Included in the equipment will be a large steam hammer, which will be used for hammering the puddled mass into iron blooms, which will be rolled down into sheet bars on their own bar mill and then into iron black plate for tinning purposes. It is the intention of this concern to make tin plate from charcoal iron blooms as heretofore and also from puddled iron.

The Fitchburg Machine Works of Fitchburg, Mass., were compelled to shut down last week because of the rush of business. The addition of high power rapid reduction tools for operation in connection with new high speed tool steel which has been adopted made additional power a necessity, and so Friday night at 6 o'clock a gang of men began a rush job of taking out the old engine preparatory to installing on the same site a new 100 horse-power engine built by C. H. Brown & Co. of Fitchburg. Work will be pushed 24 hours a day until the change has been effected, which should be by Thursday of this week. The company will also install a new electric plant to light their shops and to provide power for motor driven tools.

## New York.

NEW YORK, April 8, 1903.

**Pig Iron.**—A fair amount of business has been done at a somewhat lower level of prices. On the whole the effect of the announcement of leading Southern interests made last week has been to bring widely differing quotations closer together. The reports cabled to Europe have naturally had a disquieting effect there, and little has been done in foreign Foundry Pig. We quote, at tidewater, for prompt to early delivery: Northern Iron No. 1, \$22.25 to \$22.75; No. 2, \$20.75 to \$21.25; No. 2 Plain, \$20.25 to \$20.50. Tennessee and Alabama brands, in New York and vicinity, No. 1, \$21.50 to \$22; No. 2, \$20.50 to \$21; No. 3 Foundry, \$20 to \$20.50.

**Steel Rails.**—There is a continued demand for Rails for electrical roads, and quite a tonnage in the aggregate has been placed lately. The large railroads have now quite generally placed their orders and the mills are well booked up. There is some large Canadian business pending, but there is no chance that it will go to domestic mills. The Maryland Steel Company are about to resume the selling of Steel Billets, increased blowing power and new Coke capacity having made it possible to start the fourth blast furnace. We quote Standard Rails \$28, at Eastern mill. The price of Nickel Steel Rails, with 3 to 3½ lb. of Nickel, has been advanced to \$64.60, at mill.

**Cast Iron Pipe.**—Eastern foundries report a continuance of the excellent demand for small sizes of Pipe, the orders running from carload lots up to 300 or 400 tons. At present no large lettings are in prospect. The foundries would be pleased to secure a little more business on Pipe of large sizes, but it is expected that such orders will come along, as they usually do, a little later in the year. Carload lots are quoted at \$35.50, gross ton, for 6 to 12 inch, at tidewater.

**Finished Iron and Steel.**—An exceedingly heavy tonnage is expected to develop shortly in the building line. It is known that many projects are held up waiting for the settlement of wages schedules in the building trades for the coming year. It is hoped that these will be adjusted by May 1, or shortly thereafter, so that operations in this line will not be checked for any considerable time. Some interesting deals have been closed, notwithstanding the labor outlook. The American Bridge Company have received contracts for the erection of the buildings for the new works of the National Tube Company, at McKeesport, Pa., and Lorain, Ohio, requiring 20,000 tons; for the new Plate mill of the Carnegie Steel Company, 4000 tons, and from the Thompson-Starrett Company five buildings, of which one is located in Boston, two are in New York, one is in Philadelphia and one in Pittsburgh, aggregating 5000 tons. The strike affecting the American Bridge Company in several localities has not yet been settled, but indications point to an early adjustment of this matter. A surprisingly large tonnage of Plates is being booked, considering the disposition of so many consumers to proceed cautiously until the strike period in labor matters is past. Among the Plate orders of the week was a good block for the Pacific Coast, taken by an Eastern mill. Several lots, running up to 500 tons, were ordered by consuming interests in this locality. A great deal of work is in prospect and the mills regard the future with confidence. Prices continue to show some unevenness, but in this vicinity they have not yet settled absolutely to the Pittsburgh basis. We quote, at tidewater, as follows: Beams, Channels and Zees, 1.75c. to 2c.; Angles, 1.75c. to 2c.; Tees, 1.80c. to 2c.; Bulb Angles and Deck Beams, 1.90c. to 2.25c. Sheared Steel Plates are 1.85c. to 2c. for Tank, 1.95c. for Flange, 2.05c. for Marine and 2.25c. to 2.40c. for Fire Box. Refined Bars are 1.95c. to 2c.; Soft Steel Bars, 1.75c. to 1.90c.

**Old Material.**—Eastern mills are still endeavoring to secure Scrap at lower prices than are quoted by the dealers. They would probably be able to accomplish this if the consumption was not so large in the West. Very heavy sales, especially of Melting Scrap, are reported in the Pittsburgh district, and this fact gives the Eastern dealers some confidence that if they maintain their position they will ultimately secure what they think the material is really worth. In some instances prices have receded, notably on Old Car Wheels. A sharp demand is observed for Old Iron Rails, which are in very short supply. We quote, f.o.b. cars, vicinity New York, per gross ton, as follows:

Old Iron Rails,.....	\$24.50 to \$25.00
Old Steel Rails, long lengths.....	21.50 to 21.75
Old Steel Rails, short pieces.....	19.25 to 19.50
Relaying Rails, heavy sections.....	29.00 to 30.00
Relaying Rails, lighter sections.....	31.50 to 32.00
Old Car Wheels.....	24.00 to 24.50
Old Iron Axles.....	30.50 to 31.00
Old Steel Car Axles.....	25.50 to 26.50
Heavy Melting Steel Scrap.....	19.25 to 19.50
No. 1 Railroad Wrought Scrap Iron.....	22.50 to 23.50
Iron Track Scrap.....	19.50 to 20.50
Wrought Pipe.....	15.50 to 16.50
Ordinary Light Iron.....	11.00 to 12.00
No. 1 Machinery Cast Scrap.....	19.00 to 20.00
Stove Plate.....	14.00 to 15.00
Wrought Turnings, delivered at mill.....	17.00 to 18.00
Cast Borings, delivered at mill.....	11.50 to 12.00

## The New York Machinery Market.

NEW YORK, April 8, 1903.

The activity of the month of March has extended over into the new month and from present indications April will prove fully as good as its predecessor. Machinery merchants in all branches of the trade are unanimous as to the excellent conditions existing at present and promised for the future.

Considerable interest is shown in the trade in the London cablegram announcing the incorporation of the Worthington Pump Company, Limited, with a capital of \$4,500,000, consisting of \$2,000,000 of 5 per cent. bonds and the balance in stock. It is stated that the English company will acquire the European business of the Worthington, Blake and other American companies now included in the International Steam Pump Company. At the offices of the latter concern it was stated that Samuel Untermeyer, who was instrumental in organizing the London company, intended sailing for this country to-day and that nothing could be made public in connection with the matter until his arrival. The report has it that the new company intend erecting two large plants, one in Germany and one in Russia. In the trade this is given credence in view of the new German duty and the extensive business of the International Company abroad. It is said that the directorate of the English concern will be jointly American and English.

The Norton Grinding Company of Worcester, Mass., are soon to put upon the market a line of grinding machines larger than any that they have yet built. The sizes at present in use are 6 and 8 feet between centers, taking work weighing respectively 1200 and 1400 pounds. The new grinders will be respectively 10, 12 and 14 feet between centers, taking work weighing up to 6000 pounds, the capacity of the three sizes being the same in this respect. The swing of each will be 18 inches, which is the same as in the 8-foot grinder. The weights of the machines will be 18,000, 20,000 and 22,000 pounds. The rack for the 14-foot grinder now on the floor of the company's shop was furnished by the Standard Gauge Drawn Steel Company of Beaver Falls, Pa. It is of one piece of open hearth steel, 15 feet 6 inches in length, 2½ inches deep and 2 inches on its face. The Norton Company are filling a contract to make 2000 crankshafts for automobile engines, the specifications calling for grinding to exact size.

A branch of the Westinghouse Machine Company is to be located in Attica, N. Y., the shops to make the Roney mechanical stokers and smokeless furnaces, which are controlled by the Westinghouse Company. About 200 men will be employed. The buildings will consist of a machine shop, 100 x 250 feet; a foundry, 60 x 500 feet; a pattern shop, 35 x 250 feet; a power house, 30 x 100 feet, and an office building. The office will be located at the head of Favor street and the shops on a 30-acre plot adjoining the Erie and the Buffalo, Attica & Arcade railroads. Nothing has been heard in the trade as yet as to the amount of machinery which will be purchased for this project.

Machine tool merchants are showing interest in the auction sale of the plant and equipment of the Phenix Iron Foundry Company of Providence, R. I., which will be held on the 14th inst. J. E. Conant & Co. of Lowell, Mass., will conduct the sale. A large amount of machinery, said to be in good condition, is to be included in the sale. The plant will be open for inspection several days before the sale.

A very interesting tip is going around in the street to the effect that Arbuckle Brothers are preparing to add very extensively to their big plant, which is located at the foot of Jay street, Brooklyn, N. Y. It is said that the new plant will be larger than the addition built three or four years ago. The latter work is well recalled in the trade, as it involved the purchase of almost \$500,000 worth of machinery. It is due to the improved equipment of this plant that the Arbuckle interests have been able to compete as successfully as they have with the American Company. The proposed extension, we are advised, will be planned and equipped solely with a view of making it the most efficient and economical refinery in existence. A tunnel to connect the new plant with the present one is already completed. The plans for the new work are well under way, but no specifications have been issued as yet.

Reports of the erection of a new foundry by McNab & Harlin, at Paterson, N. J., have been going about in the trade for some time. We understand that this work will now be commenced and pushed to completion as quickly as possible, owing to the fact that the company have just secured the last parcel of land required for the site.

The Sweet's Steel Company of Syracuse, N. Y., are negotiating for a site for the location of a new plant. No decision has been reached as yet. For the building of the new plant the company propose to issue bonds to the amount of \$150,000. The present plant of the concern is located in the center of Syracuse, and as the business has assumed such proportions that expansion is absolutely necessary, a new location is imperative.

Frank & Hazen, consulting and contracting engineers, of room 711, Union Trust Building, Baltimore, Md., are making an estimate for the armor plant of the Valentine Engi-



neering Company, which will be built adjoining the Gruson Iron Works, at Eddystone, Pa. The buildings to be erected will occupy a space 200 x 600 feet, and will be set off into four structures. Armor plate will be manufactured, and the industry promises to be one of the most important of the many industries which now line the Delaware River front at Chester.

Architect L. C. Holden, 1133 Broadway, New York, is preparing plans for a new silk mill to be built at Cumberland, Md., for the Klots Throwing Company of 487 Broadway, New York. Contracts for equipment have not been let as yet. The power plant will be of 600 horse-power. Arthur Cowsill of Washington, D. C., has the contract for the buildings.

The following letter, which we received through the kindness of the Soule Steam Feed Works, manufacturers of saw mill specialties, of Meridian, Miss., is interesting in view of the increasing activity throughout the country in all lines of industry: "It is with pleasure that we beg to say that our business for the year has opened up in splendid style. Prosperity seems to have struck the lumbermen throughout the length and breadth of the land, and orders for our product are coming to us in large quantities by every mail. We have sold in the States of Washington and Oregon the first three months of this year 34 steam feeds. The outlook for that section is very bright. We are represented in the two above named States by the Puget Sound Machinery Depot of Seattle, Wash."

The Stanley Electric Mfg. Company have sold to the Indianapolis, Columbus & Southern Railway Company the following apparatus: Forty-eight type No. 402 railway motors, one 500-kw. revolving field generator, one 300-kw. rotary converter, three 110-kw. and three 150-kw. transformers and the necessary switchboard apparatus.

The following announcement is being sent to the trade from Boston: "The American Steam Gauge & Valve Mfg. Company and the Mowry & Phillips Company have become merged under the corporate name of the American Steam Gauge & Valve Mfg. Company, and the business heretofore conducted under the above names will on and after April 1, 1903, be conducted under the name of the American Steam Gauge & Valve Mfg. Company, a corporation organized under the laws of New Jersey. The merged company will collect accounts due the companies named and will make payment of their indebtedness. The officers of the company are as follows: John McCandlish, president; M. Briggs Phillips, vice-president; R. B. Phillips, secretary; J. L. Weeks, treasurer and general manager. Other officials are the same as have been serving under the separate companies."

The electrical and mechanical engineering business of the late A. M. Patitz has been acquired by the Newton Engineering Company, Hathaway Building, Milwaukee, Wis., who have extended their business of structural and civil engineering to include hydraulic and electric power plants and water works.

On account of their constantly increasing business, the Crandall Packing Company have found it necessary to have larger quarters in which to conduct the volume of trade emanating from their New York office. They have leased commodious apartments at 123 Liberty street, where their offices and salesroom will be located. S. M. Hildreth, local manager, will be very glad to welcome their numerous customers at the new location and explain the various packings, which should be interesting to all users of steam goods.

The Buffalo Forge Company announce the establishment of a new branch office in Detroit, at 1409 Majestic Building. The offices are being equipped with every modern facility fully in keeping with the high standard of the building. As heretofore, the Michigan district business will be in charge of H. M. Brightman.

## Metal Market.

NEW YORK, April 8, 1903.

**Pig Tin.**—There is a lull in the market which some of the prophets in the metal trade compare to the quiet preceding a storm. There is a feeling in the trade that the toppling of the card house is close at hand. Throughout the week the market has been awfully quiet and awfully dull, a constant slow receding of prices attending. At this writing quotations are lower than at any time during the week. Spot to June is quoted here 29.25c. to 29.75c. London has experienced a similar condition and the closing cables to-day named £134 15s. for spot and £135 5s. for futures. The complaint which has characterized the business of the last few weeks over the exceeding smallness of the buying movement from the interior is intensified. A slight buying movement on the part of consumers is not altogether unnatural, however, in view of prevailing conditions. In the first place, prices and the statistical condition don't tally. On the other hand, shipments as a result of purchases made before the dizzy heights of the present speculation had been reached have been so heavy that for the first three months of this year they exceed those of the corresponding period of last year by no less than 1600 tons. Speaking of the statistical position leads one to contemplate the fact that the total

visible supply was calculated to be 19,497 tons on March 31, 1903. Just a year ago the figures on this item were but 18,131 tons. The American visible supply of March 31, 1903, was 10,429 tons, while a year ago it was but 7356 tons. Notwithstanding this enormous increase, and particularly in the American supply, prices compare as follows: March 31, 1903—London, £139 12s. 6d.; New York, 30.50c.; March 31, 1902—London, £118, and New York, 26.50c. In view of this state of affairs it is even predicted that we shall soon see Tin being shipped back from this country to England. At times during the week under review prices here were actually below the London price. Within the next ten days the steamer "Hindoostan," direct from Singapore, is due in this port. She contains 1500 tons of Tin, the largest cargo ever shipped.

**Copper.**—This has been a poor week for the Copper manufacturers. Prices have declined perceptibly both here and abroad. Offerings were large and purchasers scarce. In this connection we might mention heavy offerings of Casting Copper, which commenced at 15c. and continued down to 14¼c., and even at that figure the sellers were unsuccessful, finding no buyers. Lake and Electrolytic, of course, suffered through this strenuous test of the market, but they suffered most from the weakness of the London market. Since our last writing London spot fell just £3 7s. 6d. Quotations are entirely nominal, Lake and Electrolytic being 14.50c.; Casting, 14.25c., and Standard, 13¾c. An offer of a quantity of Casting was made to-day at 13¾c., but the buyer didn't buy. London closed to-day at £60 10s. for spot, £60 12s. 6d. for futures and £67 10s. for best selected. Exports thus far this month amount to 3664 tons, as compared with 5336 tons for the corresponding period of last year.

**Pig Lead.**—There is no change here, and while the London price dropped 4 shillings 6 pence during the week, it recovered it again and now stands a shade higher than last week. The official quotation here is 4.65c. for 15 days' delivery and 4.67c. for spot. London cables £12 13s. 3d.

**Spelter.**—The market has been quiet and steady at 5.70c. for spot and 5.65c. shipments. St. Louis is unchanged at 5.40c., and London is firm at £22 10s.

**Antimony.**—Cookson's is quoted 8.25c. to 8.50c.; Hallitt's, 7c., and other brands, 6.75c.

**Nickel.**—No change is noted. Large quantities down to ton lots are now quoted at 40c. to 47c. per lb., according to size and terms of order. Smaller lots are quoted as high as 60c., according to quantity.

**Quicksilver.**—Has advanced to \$47.50 per flask of 76¼ lbs. in lots of 50 flasks or more. London is unchanged at £8 12s. 6d.

**Tin Plate.**—There is no change. Business is fair. The price of the American Tin Plate Company is based on \$3.80 per box of 14 x 20 100-lb. Cokes, f.o.b. mill, and \$3.90 New York delivery.

An announcement coming from John W. and Frederick Schultz, manufacturers of gold, silver and aluminum leaf, powders, &c., 152 East Houston street, New York, states:

"The undersigned beg to announce that the old established business conducted by Michael Schultz at the above address will hereafter be known as Michael Schultz's Sons. All obligations are assumed by us and all accounts outstanding are payable to us. There will be no deviation from the policy outlined by our predecessor for the past 50 years, which will recommend our manufactures."

## The Youngstown Iron Sheet & Tube Company.

The output at the plant of the Youngstown Iron Sheet & Tube Company is increasing rapidly. Last month the galvanizing, skelp and tube departments showed a gain of 50 per cent. in tonnage over February, and the other departments also showed large gains. This company are putting on the market double refined puddled iron roofing sheets, made from rerolled muck bar puddled from pure pig iron. Strong claims are made for the lasting qualities of roofs made from puddled iron sheets. The company also make steel roofing corrugated, V-crimped, painted and galvanized roofing. They are also sole makers of the Wick process galvanized sheets, which are referred to as the toughly coated kind. George E. Day is general sales agent.

The Pittsburgh Coal Company of Pittsburgh, Pa., have declared a quarterly dividend of 1¼ per cent. on the preferred stock, payable April 25.

### Ore Finding by Electricity.

LONDON, March 28, 1903.—This week a field demonstration of the electrical system of locating ore, devised by Leo Daft and Alfred Williams, was given at the Telacre mine, Prestatyn, North Wales, and is said to have been successful in locating iron ore in Cumberland. In this system an alternating current of high potential, 30,000 volts or more, is used to energize a piece of ground which is thought to contain mineral deposits, and which, therefore, it is desired to explore. The current is taken from the terminals of the generating coil to two metal rods, or electrodes, which are pushed an inch or two into the earth; from these distributors the lines of force spread out circularly, in both the vertical and horizontal planes, and can, if necessary, be made to extend over a distance of several miles, their presence being detected by means of a delicate telephonic receiver connected to a second pair of iron rods, which are also stuck in the earth in any desired position.

Normally, in homogeneous ground, the intensity of the electrical disturbance is greatest, for a given distance from the point of distribution, along a line passing half way between the electrodes at right angles to the line joining them. If the ground is not homogeneous, but is interrupted by a metalliferous deposit, the lines of force are deflected from their normal arrangement, and the region of greatest intensity is rotated from its usual position. When, therefore, exploration with the telephone receiver gives complete silence, or only faint sounds, at a place where, from its geometrical relations to the distributing electrodes, a loud sound would be expected, there is reason to suppose the existence of some metallic deposit in the vicinity, and by moving the receiving electrodes about until the sound reaches a maximum, information is gained which, in the opinion of the inventors of the method, enables the position of the deposit to be determined with considerable accuracy, and even in some cases inferences to be drawn respecting its depth and mineral richness.

In an unknown country the operator would put his distributing electrodes perhaps 200 yards apart, and would remove his receiving instruments to a distance of  $\frac{1}{2}$  mile or more. If his general mining knowledge led him to suspect that the lodes, if they existed, would run, say, east and west, he would place his electrodes north and south, and if he found the electrical distribution normal, both when the electrodes were in this position and when they were placed east and west, he would conclude that the ground contained no minerals.

At the Telacre mine, which is a lead mine, it was unnecessary to work over such long distances, because considerable development has been done, though no payable ore has been struck. The base line between the distributing electrodes was, therefore, only 80 or 100 yards long, and it was placed nearly north and south at right angles to a lode along which a heading has already been driven for a considerable distance. The line of greatest intensity and loudest sound should normally have passed through a small stable some 300 yards to the east, but on trial with the instruments almost dead silence was obtained at the stable, and the line of greatest effect was found to be slewed round 60 or 70 yards to the south. There, accordingly, a metalliferous lode is supposed to be located, though, of course, the correctness of the supposition can only be settled either by boring or by continuing the underground workings to the spot indicated.

In another mine in Wales, however, in which Alfred Williams inferred the existence of a lode from similar data, the correctness of the forecast has been shown by subsequent work, although, as was also the case in Telacre, ordinary mining signs did not suggest the existence of any minerals in the place pointed out. At Telacre the underground workings enabled another test to be made, for it was possible to put one distributing electrode 50 yards underground, with the other vertically above it. In this way a spherical distribution of the lines of force was obtained, and in normal ground the two receiving electrodes placed radially would have yielded a similar effect, or absence of effect, at every point. But, in fact, the effect was much stronger over the lode as located in the manner just described, the inference being that the

metallic mass had brought up the lines of force toward the surface and, therefore, that it was not very far down itself. Finally, both distributing electrodes being put underground, slight condenser discharges from some lode, quite different in character from the ordinary sounds, were heard in the telephone, suggesting that there was ore somewhere below the level of the heading which has already been driven.

Of course the inventors of the system do not profess to tell whether the ore they discover will pay to work, but they believe their instruments can give the miner indications of the existence of ore of some sort, additional to those he can obtain from geological knowledge or prospecting instinct.

S. G. H.

### PERSONAL.

D. M. Clemson, of the Carnegie Steel Company, at Pittsburgh, has been elected a director of the Diamond National Bank in that city.

J. P. McKinney, the well-known hinge manufacturer in Pittsburgh, has been elected a director of the Diamond National Bank in that city.

Frank Davis, formerly superintendent of the works of the Allis-Chalmers Company, at West Allis, has resigned his connection with that concern and accepted a responsible position with the Westinghouse Machine Company of East Pittsburgh.

The Bessemer gold medal for 1903 has been awarded to Sir James Kitson, whom many Americans will remember as the president of the Institute at the time of its visit to the United States.

Percy S. Davis, one of the directors of the Davis Calyx Drill Company, has returned from a prolonged business trip in Australia. On the way back, Mr. Davis stopped at Sonora, Mexico; Virginia City, Nevada, and a number of other localities where the Davis drills are in operation.

I. W. Jenks, general superintendent of the American Steel Hoop Company, sailed on Wednesday, April 8, for an extended trip to Europe.

John Chappell, vice-president of the New Castle district of the Amalgamated Association, and a candidate for the election of president of that organization, has accepted a position in the bureau of statistics of the American Tin Plate Company.

J. B. d'Homergue, manager of the insulator department of the H. W. Johns-Manville Company, sailed on March 30 for England, where he will make an investigation of the trade for asbestos and sound deadening materials in that country. Upon his return in May he will be permanently located in New York.

Pierre Jay, secretary and treasurer of the Robins Conveying Belt Company of New York, has returned from a brief trip to Europe.

Ambrose Beard of Canal Dover, Ohio, authorizes the statement that he has not accepted the position of vice-president and general manager of the Cambridge-Byesville Steel Company, which company propose to build an open hearth steel plant at Byesville, 5 miles south of Cambridge, Ohio. Reports to the contrary are untrue.

Last week Frank B. Smith assumed the duties of president of the Crucible Steel Company of America, succeeding Reuben Miller, resigned. Mr. Smith also has the title of general manager. He has returned to Pittsburgh from an extended Southern trip greatly benefited in health.

Harry A. Norton of Boston, Mass., sailed April 7 for Russia, where the Norton ball bearing jacks are now being extensively introduced.

Robt. A. Carter, president of the Monongahela Iron & Steel Company, at Pittsburgh, Pa., accompanied by his son, Howard Carter, has sailed for England. Mr. Carter will endeavor to build up a foreign trade in fine grade iron and chain made by his company.

Alden & Harlow, architects of Pittsburgh, have given a contract to the Henry Shenk Company for the erection of the East End Carnegie sublibrary at Pittsburgh. The building will cost about \$150,000, and will be triangular in shape.



## The United States Steel Corporation.

### First Annual Report.

The United States Steel Corporation have just issued their first annual report, which covers the operations of the year ending December 31, 1902. The report is very complete, both financially and as to administrative details.

Referring to the statistics of production no comparison can be made with the total output of the country except as to pig iron and rails. In 1902 the total pig iron production was 17,821,307 gross tons, and as the corporation turned out 7,975,530 tons, this was 45 per cent. of the country's output. The percentage of steel rails made was much higher. In 1902 the entire output of the country was 2,876,293 gross tons, of which the corporation made 1,920,786 tons, or 67 per cent. The report is as follows:

ASSETS.	
Property account:	
Properties owned and operated by the several companies...	\$1,453,635,551.37
Less surplus of subsidiary companies at date of acquirement of their stocks by United States Steel Corporation, April 1, 1901.....	116,356,111.41
Charged off to depreciation and extinguishment funds.....	12,011,856.53
	\$128,367,967.94
Deferred charges to operations:	
Expenditures for improvements, explorations, stripping and development at mines, and for advanced mining royalties, chargeable to future operations of the properties.....	3,178,759.67
Trustees of sinking funds:	
Cash held by trustees on account of bond sinking funds (\$4,022,000 par value of redeemed bonds held by trustees not treated as an asset).....	459,246.14
Investments:	
Outside real estate and other property.....	\$1,874,872.39
Insurance fund assets.....	929,615.84
	2,804,488.23
Current assets:	
Inventories.....	\$104,390,844.74
Accounts receivable.....	48,944,189.68
Bills receivable.....	4,153,291.13
Agents' balances.....	1,091,318.99
Sundry marketable stocks and bonds.....	6,091,340.16
Cash.....	50,163,172.48
	214,834,157.18
Total assets.....	\$1,546,544,234.65

Audited and found correct. Price, Waterhouse & Co., auditors. New York, March 12, 1903.

LIABILITIES.	
Capital stock of United States Steel Corporation:	
Common.....	\$508,302,500.00
Preferred.....	510,281,100.00
	\$1,018,583,600.00
Capital stocks of subsidiary companies not held by United States Steel Corporation (par value):	
Common stocks.....	\$44,400.00
Preferred stocks.....	72,800.00
Lake Superior consolidated iron mines subsidiary companies.....	98,714.38
	215,914.38
Bonded and debenture debt:	
United States Steel Corporation bonds.....	\$303,757,000.00
Less redeemed and held by trustee of sinking fund.....	2,698,000.00
Balance held by the public.....	\$301,059,000.00
Subsidiary companies' bonds:	
Less redeemed and held by trustees of sinking funds.....	1,324,000.00
Balance held by the public.....	\$59,654,900.75
Debenture scrip, Illinois Steel Company.....	40,426.02
	\$360,754,326.77
Mortgages and purchase money obligations of subsidiary companies:	
Mortgages.....	\$2,901,132.07
Purchase money obligations.....	6,689,418.53
	9,590,550.60
Current liabilities:	
Current accounts payable and pay rolls.....	\$18,675,080.13
Bills and loans payable.....	6,202,502.44
Special deposits due employees and others.....	4,485,546.58
Accrued taxes not yet due.....	1,051,605.42
Accrued interest and un-presented coupons.....	5,398,572.96

Preferred stock dividend No. 7, payable February 16, 1903.....	8,929,919.25
Common stock dividend No. 7, payable March 30, 1903.....	5,083,025.00
	49,826,251.78
Total capital and current liabilities.....	\$1,438,970,643.53

Sinking and reserve funds:	
Sinking fund on United States Steel Corporation bonds.....	\$1,773,333.33
Sinking funds on bonds of subsidiary companies.....	217,344.36
Depreciation and extinguishment funds.....	1,707,610.59
Improvement and replacement funds.....	16,566,190.90
Contingent and miscellaneous operating funds.....	3,413,783.50
Insurance fund.....	1,539,485.25
	25,217,747.93
Bond sinking funds with accretions (represented by cash, and by redeemed bonds not treated as assets—see contra).....	
	4,481,246.14
Undivided surplus of United States Steel Corporation and subsidiary companies:	
Capital surplus provided in organization of United States Steel Corporation.....	\$25,000,000.00
Surplus accumulated by all companies since organization of United States Steel Corporation.....	52,874,597.05
	\$77,874,597.05
Total liabilities.....	\$1,546,544,234.65

\* NOTE.—In preliminary report, submitted to stockholders at the first annual meeting, February 17, 1902, the accumulated surplus of all subsidiary companies to November 30, 1901, was shown as \$174,344,229.32. This total, however, included the surplus of the subsidiary companies at time of the original acquisition of their stocks by United States Steel Corporation in 1901, which surplus in this balance sheet is stated in diminution of property account.

#### INCOME ACCOUNT FOR THE YEAR.

The total net earnings of all properties after deducting expenditures for ordinary repairs and maintenance (approximately \$21,000,000\*), also interest on bonds and fixed charges of the subsidiary companies, amounted to.... \$133,308,763.72

Less appropriations for the following purposes—viz.:	
Sinking funds on bonds of subsidiary companies.....	\$624,064.43
Depreciation and extinguishment funds (regular provision for the year).....	4,834,710.28
Extraordinary replacement funds (regular provision for the year).....	9,315,614.76
Special fund for depreciation and improvements.....	10,000,000.00
	24,774,389.47

Balance of net earnings for the year.... \$108,534,374.25

Deduct:	
Interest on United States Steel Corporation bonds for the year.....	\$15,187,850.00
Sinking Fund on United States Steel Corporation bonds for the year.....	3,040,000.00
	18,227,850.00

Balance..... \$90,306,524.25

Dividends for the year on United States Steel Corporation Stocks—viz.:	
Preferred, 7 per cent.....	\$35,720,177.50
Common, 4 per cent.....	20,332,690.00
	56,052,867.50

Undivided profits or surplus for the year \$34,253,656.75

\* The actual expenditures for ordinary repairs and maintenance were \$21,230,218.13. It cannot be stated, however, that this specific sum was taken out of the net earnings for the year, because in the manufacturing and producing properties the expenses for repairs and maintenance enter into and form a part of production cost. And as the net earnings of such properties are stated on the basis of gross receipts for product shipped, less the production cost thereof, the income for the year is charged with outlays for repairs and maintenance only to the extent that the production during such period was actually shipped. But as the shipments in 1902 equaled practically the year's production, approximately the entire amount of the expenditures in question has been deducted before stating the net earnings as above.

#### GENERAL PROFIT AND LOSS ACCOUNT.

##### Gross Receipts.

Gross sales and earnings.....	\$560,510,479.39
Manufacturing and Operating Expenses.	
Manufacturing and producing cost and operating expenses.....	\$411,408,818.36
	\$149,101,661.03
Miscellaneous manufacturing and operating gains and losses, net.....	\$2,654,189.22
Rentals received.....	474,781.49
	3,128,970.71

Total net manufacturing, producing and operating income..... \$152,230,631.74

##### Other Income.

Proportion of net profits of properties owned but whose operations (gross revenue, cost of product, expenses, &c.) are not included in this statement.....	
	\$1,972,316.45
Interest and dividends on investments and on deposits, &c.....	3,454,135.50
	5,426,451.95
Total income.....	\$157,657,083.69

**General Expenses.**

Administrative, selling and general expenses (not including general expenses of transportation companies) .....	\$13,202,398.80	
Taxes .....	2,391,465.74	
Commercial discounts and miscellaneous interest.....	1,908,027.90	17,501,892.53
Balance of income.....		\$140,155,191.16

**Interest Charges, &c.**

Interest on bonds and mortgages of the subsidiary companies..	\$3,879,439.91	
Interest on bills payable and purchase money. Obligations of subsidiary companies and miscellaneous interest.....	2,234,144.43	
Rentals paid.....	732,843.10	6,846,427.44
Net earnings for the year.....		\$133,308,763.72

\* Includes charges for ordinary maintenance and repairs.

**MAINTENANCE, RENEWALS AND EXTRAORDINARY REPLACEMENTS.**

The physical condition of the properties has been fully maintained during the year, the cost of which has been charged to current operations. The amount expended by all properties during the year for maintenance, renewals and extraordinary replacements aggregated \$29,157,010.73. This total is apportioned as follows:

Expended on	Ordinary Maintenance and Repairs.	Extraordinary Replacements.*	Total.
Manufacturing properties .....	\$16,099,217.94	\$6,978,230.48	\$23,077,448.42
Coal and coke properties .....	881,804.77	94,664.39	976,469.16
Iron ore properties.....	355,220.12		355,220.12
Transportation properties:			
Railroads .....	3,544,654.27	607,967.88	4,152,622.15
Steamships and docks .....	313,801.37	192,317.80	506,119.17
Miscellaneous properties .....	35,519.66	53,612.05	89,131.71
Total .....	\$21,230,218.13	\$7,926,792.60	\$29,157,010.73

\*These expenditures were paid from funds provided from earnings to cover requirements of the character included herein.

**VOLUME OF BUSINESS.**

The volume of business done by all companies during the year, including sales between the companies, and the gross receipts of transportation and miscellaneous properties, aggregated the total sum of \$560,510,479.39.

**PRODUCTION.**

The production of the several properties for the year 1902 was as follows:

Iron ore mined:	Tons.	Tons.
From Marquette range.....	1,487,370	
From Menominee range.....	2,675,754	
From Gogebic range.....	2,064,492	
From Vermillion range.....	2,057,537	
From Mesaba range.....	7,778,026	16,063,179
Coke manufactured.....		9,521,567
Coal mined, not including that used in making coke.		709,367
Blast furnace products:		
Pig iron.....	7,802,812	
Spiegel .....	128,265	
Ferromanganese and silicon.....	44,453	7,975,530
Steel ingot production:		
Bessemer ingots.....	6,750,210	
Open hearth ingots.....	2,984,708	9,734,918

**ROLLED AND OTHER FINISHED PRODUCTS FOR SALE.**

	Tons.
Steel rails.....	1,920,786
Blooms, billets, slabs, sheet and tin plate bars.....	782,637
Plates .....	649,541
Merchant steel, skelp, shapes, hoops, bands and cotton ties.....	1,254,560
Tubing and pipe.....	744,062
Rods .....	109,330
Wire and products of wire.....	1,122,809
Sheets—black, galvanized and tin plates.....	783,576
Finished structural work.....	481,029
Angle and splice bars and joints.....	139,954
Spikes, bolts, nuts and rivets.....	42,984
Axles .....	136,787
Sundry iron and steel products.....	29,177
Total .....	8,197,232
Spelter .....	23,982
Copperas .....	14,224
Cement .....	486,357

**ORDERS ON HAND.**

The tonnage of unfilled orders on the books at the close of 1902 equaled 5,347,253 tons of all kinds of manufactured products. At the corresponding date in the preceding year the orders booked equaled 4,497,749 tons. In many of the classes of heavier products, like rails, plates and structural material, practically the entire capacity of the mills is sold up until nearly the end of the year 1903.

**PURCHASE MONEY OBLIGATIONS, BILLS PAYABLE AND SPECIAL DEPOSITS.**

The unsecured liabilities of the subsidiary companies of the above character were reduced during the fiscal year of 1902, and also during the period from April 1, 1901 (date of organization of United States Steel Corporation) to December 31, 1902, by the following respective amounts—viz.:

	Paid off between April 1, 1901, and December 31, 1901.	Paid off during year April 1, 1901, to December 31, 1902.	Total reduction.
Purchase money obligations and bills payable....	\$8,678,836.01	\$12,884,558.85	\$21,563,394.86
Special deposits.....	2,369,134.56	767,809.09	3,136,943.65
Totals .....	\$11,047,970.57	\$13,652,367.94	\$24,700,338.51

The funds for the payment of the above liabilities were provided entirely from the surplus net earnings of the organization—no new capital or bonded or other liability has been created in lieu thereof, although practically all of such payments might properly be funded, as the liabilities were those of the subsidiary companies prior to or at the time of organization of United States Steel Corporation for the acquirement of additional property or for moneys borrowed, which were in turn used for purchase of property and construction expenditures.

As shown by the general balance sheet, the amount of these liabilities outstanding on December 31, 1902, is as follows:

Purchase money obligations.....	\$6,689,418.53
Bills payable.....	6,202,502.44
Special deposits.....	4,485,546.58
Total.....	\$17,377,467.55

**PROPERTY ACCOUNT.**

The expenditures made during the year by all the properties and charged to property account equaled, less credits for property sold, the total sum of \$16,586,531.77. These outlays were made for the completion of construction work at manufacturing properties under way when the United States Steel Corporation was organized, also for necessary additions and extensions authorized since its organization, for the acquirement of additional ore and coal property, the opening and development of new mines and plants, for additional equipment and facilities demanded by the growing requirements of the business of the transportation properties, to secure material reduction in cost of manufacture, transportation of raw and unfinished materials, and distribution of finished products, &c.

The outlays as above are classified by properties as follows:

Expended by—	
United States Steel Corporation, on account of acquirement of stocks of subsidiary companies.....	\$258,473.31
Manufacturing properties.....	9,743,125.78
Ore properties.....	1,971,542.08
Coal and coke properties.....	2,043,168.61
Transportation properties.....	2,741,652.51
Miscellaneous properties.....	Cr. 171,430.52
Total.....	\$16,586,531.77

**EMPLOYEES AND PAY ROLLS.**

The average number of employees in the service of all properties during the entire year was..... 168,127

The aggregate amount paid during the year for salaries and wages of employees was..... \$120,528,343

The following shows the classification of the number of employees and pay rolls between the several departments named:

Employees of—	Number.
Manufacturing properties.....	125,326
Coal and coke properties.....	16,519
Iron mining properties.....	13,465
Transportation properties.....	11,160
Miscellaneous properties.....	1,657
Total.....	168,127

**NUMBER OF STOCKHOLDERS.**

The following shows the number of stockholders in the United States Steel Corporation in March, 1903, in comparison with the number at corresponding date in preceding year:

	1902.	1903.	Increase.
Preferred .....	25,296	31,799	6,503
Common .....	17,723	26,830	9,107
Totals.....	43,019	58,629	15,610

The foregoing does not include the subscriptions for preferred stock by 27,379 employees under plan offered them under date of December 31, 1902.

**The Malleable Iron Founders.**

CHICAGO, ILL., April 8, 1903.—The monthly meeting of the malleable iron founders is being held at the Auditorium Hotel, Chicago, to-day. The assembling of representatives from 12 of the largest malleable iron companies has given rise to the report that another effort is being made to combine the various independent interests. This is denied by prominent officials, but future action with this end in view may be discussed at to-day's meeting.

Laclede J. Howard, president of the Evens & Howard Fire Brick Company, St. Louis, Mo., died suddenly Sunday morning, April 5, at the family residence, 4421 Westminster place. Mr. Howard's death was a surprise to his friends and business associates. When he retired Saturday night he was in his usual health. Shortly after midnight he became ill. Physicians were summoned, but before they arrived he was attacked with hemorrhages and died in 15 minutes. He was vice-president of the National Brickmakers' Association, and was known throughout the country as one of the largest manufacturers of clay products. The firm of which he was the head was founded many years ago by his father, Richard J. Howard, a pioneer resident of St. Louis, who was Surveyor of the Port under President Lincoln. Mr. Howard was born in St. Louis in 1847. After finishing his education he became associated with his father in the manufacture of brick. When the Evens-Howard Company were formed in 1883 he became president of the firm.

F. R. Phillips of F. R. Phillips & Sons Company, Philadelphia, has sailed for London for the purpose of opening an independent office there. He will remain in London to take general charge of the import and export business of the firm.



# HARDWARE.

The retail merchants of the country who are doing a good business are apparently becoming more and more desirous of obtaining advantageous prices on their purchases. This is not merely because it is on general principles advantageous to buy goods at low prices rather than at high, but because the competition with catalogue houses and department stores forces them to sell many articles at very close prices, so that it becomes a matter of necessity to buy at correspondingly low figures. This state of things is unquestionably recognized to a certain extent by the progressive jobbers, who endeavor to hold the trade of such enterprising and growing retail houses, and accordingly usually sell them at lower prices than are given to the merchants who are less energetic in the carrying on of their business. This is in accordance with principles which must hold in trade, as the desirability of the customer and the volume of his purchases have much to do in determining the grade of prices which he shall be accorded.

In accordance with the efforts on the part of retail merchants who are little by little extending their business as they are taking their places as local jobbers, inquiry is frequently made by them as to how they can get on the "jobbers' list," as the phrase goes, and thus become entitled to jobbers' prices. There is, however, no such thing as a list of the houses who are recognized by manufacturers in all the various lines as entitled to jobbing prices. Instead of this being the case there are many lists of jobbers, each of which relates to a single line. Thus the manufacturers of Shovels and Spades have their own list of houses, whether designated as "Sub Rosa" or "11 per cent.," as the case may be, but this list is entirely different from that which is used by the manufacturers of Chisels. The list of the Chisel manufacturers also is independent of the lists which determine the grading of prices on Conductor Pipe, or Wire Nails, or Steel Goods. Where there is an association of manufacturers for the purpose of regulating quotations such association as a general rule makes up its own list in view of the standing of the houses in the trade, or the special relations which exist between the merchants and one or more of the manufacturers. Instead, therefore, of there being a "jobbers' list" there are a multitude of jobbers' lists.

There is accordingly no royal road to recognition as a jobber. Those who are not already recognized as jobbers and desire jobbers' prices must establish their title to them in each line of goods or with the manufacturers separately as they are able to convince them that the character of the business they are doing and the volume of goods they sell entitle them to this consideration. Fortunately for them most manufacturers are disposed to regard with a good degree of favor rising houses who are by enterprise and push extending their business and developing into small jobbers. It is well known that in this way many of the great houses have developed from modest beginnings to the commanding position they now occupy as distributors of Hardware. In this respect the history of the trade is constantly repeating itself.

## Condition of Trade.

The weather has, on the whole, been decidedly favorable to business, as the advance of the season has stimulated the demand. The spring trade is moving along in

excellent volume, and reports from retail merchants are almost uniformly satisfactory. The existing prosperity and the accompanying activity in all departments of industry is such as to give employment to practically all who are able and willing to work, while the movement of current business as articles of all kinds are entering into consumption is very heavy. It is gratifying, too, to note that the prospects for the crops, which have so much to do with the continuance of existing satisfactory conditions, are exceedingly favorable. Both wholesale and retail merchants are buying freely and experiencing more or less difficulty in getting goods. The increased facilities of manufacturers in almost every line are, however, putting them in a position better to meet the requirements of their customers than ever before. There is less complaint about delays in transportation, and manufacturers are getting their raw material more promptly and are thus aided in the execution of their orders. The Hardware market shows few radical changes in price, but a revision of quotations is going on constantly, the general trend of things being upward, and the tone of the market is accordingly decidedly firm.

### Chicago.

(By Telegraph.)

A liberal supply of Coke, a great improvement in the delivery of raw material and the removal of the embargo upon the distribution of the finished product have been the chief causes contributing to a more confident tone among manufacturers. Nearly all mills are now in a normal condition, so far as manufacturing is concerned, some of them working to full capacity; but so long has been the delay in the assembling of raw material and in the shipment of the manufactured product that it seems doubtful, especially among the Wire and Nail mills, that producers will be able to catch up with accumulated orders during the busy season. In some measure the lower prices now prevailing for raw material have counteracted the tendency toward higher prices for the finished product which outside mills seem to think inevitable. Shipments of Steel Goods, Refrigerators, Ice Cream Freezers, Lawn Mowers and Hardware Specialties are now going forward quite liberally from the factories, and orders of moment are being received for Stove Pipe, Elbows, Axes, Lanterns and similar goods for fall delivery. The jobbing trade continues active and has felt the stimulus during the past few days of the warm weather. Orders from the country, both for standard goods and specialties, are showing a material improvement, while purchases by country merchants in person have increased materially. The scarcity noted in Wire Cloth continues, but one or two factories are reported to be making more satisfactory shipments. Ice Cream Freezers are in ample supply, as quite considerable stocks were carried over from last year and factories have increased facilities since last season. There continues to be quite a satisfactory movement in Heavy Hardware, including Bars, Shapes, Bolts, Rivets, Washers, Nuts, &c., but one of the principal features is the scarcity of Rivets and Washers. Rivets and Solid Box Vises have been advanced. The stronger tone and higher prices prevailing for Gutter Pipe and Eave Trough in the East have been reflected in this market. An advance, too, of 10 per cent. has been established on Bright Wire Goods, this market sympathizing with Eastern centers. For several weeks buyers have been in this market for a considerable quantity of Hardware for stocking a new establishment in Utah. It is understood now that these purchases have been about completed. Some liberal sales of Tin Plate, Enameled Ware and Edge Tools have been made during the past few days. Factories are said to be far behind in shipment of Edge Tools, Chisels being especially scarce, some desirable orders for early shipment having been turned down by the manufacturers because of oversold condition. Builders' Hardware has been quiet rather than otherwise, but the outlook is encouraging, and one large contract amounting to \$9000, for the equipping of the St. Francis Hotel at San Francisco, has been secured by a local company.

**St. Louis.***(By Telegraph.)*

Spring trade can now be said to be in full swing, and jobbers at this center are experiencing a satisfactory and liberal demand. Sufficient time has elapsed for a thorough digesting of the sales figures for the past month and the showing has certainly proved to be a most excellent one, being with some the largest in the history of the establishment. The disturbing influence of the Southern flood conditions has subsided and a resumption of the buying from the affected districts is an encouraging feature. The market is showing up very well, and probably the only factor that might upset present calculations would be disturbances in the labor field. Prices are very firm all through the list, with prospects of advances in some quarters. The heavy department of the market shows advancement and the existing demand is said to be of a very satisfactory volume.

**NOTES ON PRICES.**

**Wire Nails.**—There is no change in the condition of the market. Demand continues active and prices are well maintained. Mills are considerably behind on orders, and as the spring trade promises to be large, there is fear expressed that there may be a shortage of Nails. Quotations are as follows:

Jobbers, carload lots.....	\$2.00
Retailers, carload lots.....	2.05
Retailers, less than carload lots.....	2.15

**New York.**—The local demand is good, while the tone of the market is firm. Strikes among the building trades in territory tributary to this point are having a slight effect upon the number and size of orders. Quotations are closely adhered to, and are as follows: Single carloads, \$2.20; small lots from store, \$2.25 to \$2.30.

**Chicago, by Telegraph.**—Further improvement has been noted in the delivery of Nails on contract, and the mills being now well supplied with fuel and the prospect decidedly better for an ample supply of Rods, orders will be taken care of more satisfactorily; but with the present condition of order books and continued new demand, it is doubtful whether the mills will complete their contracts fully before the busy season is over. Independent producers are in almost as bad a condition as the combination mills. However, there does not seem to be any prospect of an advance in prices, as was anticipated some weeks since. The jobbing trade is active and prices are firm, sales being made on the basis of \$2.15 to \$2.20 in carload lots, f.o.b. Chicago.

**St. Louis, by Telegraph.**—Jobbers continue to quote in small lots at \$2.35. Trade conditions are said to be very satisfactory.

**Pittsburgh.**—The condition of the Wire Nail trade remains exceedingly satisfactory, demand being heavy and the tone of the market very firm. The belief is strong in the trade that a further advance in price of Wire Nails may be announced at any time. The mills are heavily booked up, and prompt deliveries are somewhat difficult to obtain. Prices are unchanged, and are as follows: Wire Nails \$2 in carloads to jobbers, \$2.05 in carloads to retailers and \$2.15 in small lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days; for Galvanizing Nails 75 cents per keg is charged and for Tinning Nails \$1.50 per keg extra.

**Cut Nails.**—The advance of 5 cents per keg, which went into effect on April 1, is being adhered to. The demand is large and Nails are rather difficult to obtain in some cases. Quotations are as follows: \$2.15, base, in carloads, and \$2.20 in less than carloads, f.o.b. Pittsburgh, plus freight in Tube Rate Book to point of destination; terms 60 days, less 2 per cent. off in 10 days.

**New York.**—Cut Nails are in steady demand, which appears to be on the increase in this immediate vicinity. Jobbers report that customers who have not been in the habit of handling them are now including them in their orders. Irregularity in prices has about disappeared. Quotations for carloads and less than carloads are as follows:

Carloads on dock.....	\$2.29
Less than carloads on dock.....	2.33
Small lots from store.....	2.40

**Chicago, by Telegraph.**—The market has been without further change, there being a good demand, the difficulty of obtaining prompt shipments still existing. The jobbing trade has been stimulated recently and the market has remained strong on the basis of \$2.30 in carload lots and \$2.35 in less than carload lots for Steel, Chicago. Iron Nails are quoted at \$2.50 to \$2.55 per keg from store, but are very difficult to obtain.

**St. Louis, by Telegraph.**—Cut Nails are in good demand and jobbers continue to quote Steel at \$2.40, and Iron at \$2.60.

**Pittsburgh.**—We note a good demand for Cut Nails and the market is very firm. The mills are still somewhat hampered by lack of Steel, and this, with the very heavy demand, is causing some delay in getting prompt deliveries. Prices show no change, and for April delivery are as follows: Steel Cut Nails, \$2.15, base, in carloads and \$2.20 in less than carloads; Iron Cut Nails, \$2.25, base, in carloads and \$2.30 in less than carloads, plus freight in Tube Rate Book to point of destination, 60 days, less 2 per cent. off in 10 days.

**Barb Wire.**—While the amount of new business is moderate, the mills will be kept busy for some time filling contracts which were made some time ago. The condition of the market is very satisfactory and prices are firm. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$2.30	\$2.60
Retailers, carload lots.....	2.35	2.65
Retailers, less than carload lots.....	2.45	2.75

**Chicago, by Telegraph.**—Notwithstanding the overcrowded condition of the mills orders continue to be received to an extent that is overwhelming, and although there is an improvement in the assembling of raw material, and there is a more ample supply of cars for the movement of the finished product, the mills are having a hard time to catch up with back orders, and it is doubtful whether distributors will receive all goods ordered before the active season is over. Jobbers report a material increase in demand and liberal shipments. A firmer tone prevails, prices being unchanged at \$2.80 in carload lots for Galvanized, Painted selling at 30 cents under these prices.

**St. Louis, by Telegraph.**—The demand for Barb Wire continues in very substantial volume. Jobbers quote Painted at \$2.65 and Galvanized at \$2.95 in small lots from store.

**Pittsburgh.**—A moderate amount of new business is being placed in small lots, the larger trade having placed contracts some time since, on which the mills are now busily employed. The tone of the market is quite strong. We quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days: Painted, \$2.30; Galvanized, \$2.60, in carloads to jobbers; Painted, \$2.35; Galvanized, \$2.65, in carloads to retailers; Painted, \$2.45; Galvanized, \$2.75, in small lots to retailers.

**Smooth Fence Wire.**—New orders and specifications on old contracts are keeping the mills busy. There are no indications that spring business will be below that of previous years. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.90
Retailers, carloads.....	1.95
Less than carloads.....	2.05

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

6 to 9	10	11	12	12½	13	14	15	16	
Base.	\$0.05	.10	.15	.25	.35	.45	.55		Annealed.
\$0.30	.35	.40	.45	.55	.65	1.05	1.15		Galvanized.

**Chicago, by Telegraph.**—There has been a much freer distribution of goods on old contracts, but the mills are still hopelessly behind in filling old contracts. The prospect, however, is better for an increased output through the working of mills at full capacity and for shipments because of improved transportation facilities. New orders continue to be received, and in such tonnage as to be embarrassing rather than otherwise. A firmer tone pre-



vails, the following being the prices current: Nos. 6 to 9 on the basis of \$2.05 to \$2.10 in carload lots on track, and \$2.15 to \$2.20 in less than carloads from store, Galvanized bringing 30 cents extra for Nos. 6 to 14, and 60 cents extra for Nos. 15 and 16.

**St. Louis, by Telegraph.**—Little change is to be noted in the market for Plain Wire, the demand being substantial and prices firm. No. 9 is quoted at \$2.30 and Galvanized at \$2.60 in small lots from store.

**Pittsburgh.**—The mills are employed mostly on contracts placed some time since, specifications on which are being received at a satisfactory rate. The mills are well booked up for the next several months and prices are very firm, being as follows: Plain Wire, \$1.90, base, for Nos. 6 to 9 in carloads to jobbers, \$1.95 in carloads to retailers and \$2.05 in small lots to retailers; Galvanized, 30 cents extra for Nos. 6 to 14 and 60 cents extra for Nos. 15 and 16.

**Augers and Bits.**—The manufacturers of Augers and Bits have recently announced higher prices, and this line is regarded as in better condition than for some time. The new discounts are announced as follows by Russell & Erwin Mfg. Company, New York:

	Discount.
Swan's No. 1 Cast Steel Bits.....	70 %
Swan's No. 1 Cast Steel Augers.....	66 2-3 %
Swan's Cast Steel Boring Machine Augers.....	66 2-3 %

**Solid Box Vises.**—An advance of about 15 per cent. has been made by the manufacturers of Solid Box Vises, and the discount to the general trade on the basis of these new quotations may be generally stated as from 50 and 5 to 50 and 10 per cent.

**Rivets.**—The Rivet market is decidedly firm, and while no general advance has been made it is not unlikely that higher prices will develop.

**Window and Door Screens.**—The market for Window Screens and Screen Doors is in a very satisfactory condition, so far as the volume of business and prices are concerned. Most of the manufacturers find their capacity fully taxed to supply the demands of the trade, notwithstanding the fact that many of them have increased their facilities during the past year. Some difficulty is experienced on account of lack of transportation facilities and also on account of slow deliveries of Wire Cloth. Prices are somewhat higher than a year ago, having been advanced in the early winter, but the increased price is referred to as not entirely covering the greater cost of Wire, lumber and labor. Some of the manufacturers complain of having been hampered by delayed specifications from jobbers who placed their contracts during the fall or early winter, as there has been a disposition to await specifications from retailers before sending in their detailed orders to the manufacturers. As it is difficult to anticipate the assortments the jobbers will require, specifications sent in during the spring months are difficult to fill, as they are pretty sure to cover some items that are not fully represented in stock.

**Freezers.**—There is apparently a disposition on the part of the retail trade to purchase Freezers early, and orders are consequently being received in good numbers and for considerable quantities of goods by the manufacturers. Prices are substantially the same as a year ago, notwithstanding the increased cost of raw material in some lines.

**Binder Twine.**—The prices announced by the International Harvester Company on April 1 have been adopted by Eastern manufacturers. Prices at Eastern mills are, however,  $\frac{1}{4}$  cent less than at Chicago, as usual, owing to the difference in freight. It has been intimated that the combined factories withheld prices, not so much to get at the average cost of raw material as to discourage other makers making up Twine. Navigation opened this year two or three weeks earlier than usual and an earlier season would naturally be expected to follow. Rope manufacturers are in their busy season and are not generally inclined to put their machines on Twine. The consumption of Twine for the season is estimated at 90,000 to 95,000 tons, and while there is little doubt that sufficient Twine will be made to supply the demand, if the season is earlier than usual the jobbers may have difficulty in obtaining an adequate supply early in the season. Quotations are as follows, f.o.b. Eastern mills, with  $\frac{1}{4}$  cent per pound rebate in carload lots:

Sisal .....	10 $\frac{1}{4}$ c.
Standard .....	10 $\frac{1}{4}$ c.
Standard Manila (550 feet).....	11c.
Manila (600 feet).....	11 $\frac{3}{4}$ c.
Pure Manila (650 feet).....	12 $\frac{1}{4}$ c.

**Glass.**—The report which was alluded to in our columns last week, that the majority of Glass factories were to close down on April 18, has become an assured fact. All the Window Glass factories in the United States, except concerns whose total capacity does not exceed 300 pots, have agreed to close on the above date. No time is set for starting in the fall and it will probably depend largely upon the condition of the market. Large stocks, the unsettled condition in which the market has been and the policy of dealers not to buy beyond their present requirements may tend to prevent an immediate advance in prices. This will probably come later in the season, when assortments in manufacturers' hands become broken. From present indications prices will go no lower if the factories fulfill their agreement to close down on April 18. Quotations of the jobbers' association, for either single or double strength, are as follows:

	Discount.
From store.....	90 and 10 %
F.o.b. factory, carload lots.....	90 and 20 and 2 $\frac{1}{2}$ %
F.o.b. factory, 2000-box lots.....	90 and 25 %

**Oils.**—**Linsed Oil.**—Considerable Oil is being taken on contracts, but there are comparatively few new orders for present or future shipment. Manufacturers do not seem to be exerting themselves to create a demand. The market is steady at former quotations, which are as follows, according to quantity: City Raw, 46 to 47 cents; out of town Raw, 43 cents per gallon.

**Spirits Turpentine.**—Owing to reports from Savannah the latter part of last week of a demoralized market a sharp decline in prices took place at this point. Opinion is divided regarding the lack of demand. Some attribute it to a manipulation of the market, while others assume that a lower range of prices is to prevail. Buyers are reluctant to purchase at present. The market is now somewhat firmer, and quotations, according to quantity, are as follows: Southern, 56 $\frac{1}{2}$  to 57 cents; machine made barrels, 57 to 57 $\frac{1}{2}$  cents per gallon.

## DEATH OF P. H. STERNBERGH.

**P**HILIP H. STERNBERGH, who died in Kansas City, Mo., on the 2d inst., was the oldest son of J. H. Sternbergh and was formerly associated in business with his father at Reading, Pa. For several years past he had been manager of the Kansas City Bolt & Nut Company. Mr. Sternbergh had been brought up in the Bolt manufacturing business, entering it in 1884 after leaving Princeton College, and was admitted to partnership with his father in 1886. He withdrew from the firm of J. H. Sternbergh & Son in January, 1893, and after some five years of post graduate study and travel and a residence in Southern California, he again entered business, becoming the vice-president and manager of the Kansas City Bolt & Nut Company, making his home in Kansas City, where he had a wide circle of friends and was well and favorably known to personal and business friends in the West and Northwest. Under his careful management the Kansas City company are said to have more than doubled their assets and yearly business. Mr. Sternbergh was born in Saratoga Springs in July, 1865, and was a bachelor. The burial was at Reading.

Thompson & Roell Hardware Company, Owatonna, Minn., are establishing a Hardware business at Ellendale, Minn., under the style of Ellendale Hardware Company. They purpose carrying at Ellendale as complete a stock as possible of Hardware, Farm Machinery, Bugles, Wagons, and all kinds of Thresher Supplies and Pumps. They will also have a Tin, Harness and Pump shop.

SCHMACHTENBERG BROS., 98 Chambers street, New York, with a view of extending their business facilities, have taken the entire third floor, about 55 x 65 feet, at 66-68 Reade street. They import full lines of German Pocket Knives, Razors and Scissors made at their works in Solingen, Germany.

## NEW ENGLAND IRON AND HARDWARE ASSOCIATION.

THE annual banquet of the New England Iron and Hardware Association will be held at the Hotel Vendome, Boston, Mass., Tuesday, April 14, at 6.30 p.m., with a reception at 6 o'clock, as formerly. The committee having the dinner in charge are John T. Boyd, chairman; Oscar A. Shepard; Harry W. Waite. Charles Clark Adams of Sargent & Co., will act as toastmaster, and music will be furnished by Daggett's Orchestra. The stockholders and associate members may invite as many guests to the dinner as they wish, and a diagram will be used to seat the guests, in order to bring together as many as desire to sit near each other. The committee have secured the following speakers: The Hon. Patrick A. Collins, Mayor of Boston; Hon. James J. Myers, Speaker of the House of Representatives; Hon. Herbert Parker, Attorney-General; Charles A. Bartlett, attorney at law, Boston, Mass.

### REQUESTS FOR CATALOGUES, &c.

J. B. Mallory has lately engaged in business at Webb City, Mo., handling Shelf Hardware, Stoves, Tinware, &c. He requests copies of catalogues and price-lists pertaining to these lines.

A. Sharshal & Son have succeeded the Shawnee Drug & Hardware Company, Shawnee, Ohio, carrying a line of general Hardware, Paints, Oils, &c. The new firm would be pleased to receive catalogues and price-lists relative to these lines.

W. G. Gambrell & Co., Greenwood, S. C., have become a stock company, chartered under the laws of South Carolina, with \$20,000 capital. The style is Gambrell Hardware Company, and the officers are W. G. Gambrell, president, and Paul W. McLure, treasurer and manager. The company will carry on both a wholesale and retail business, and will appreciate copies of catalogues and also quotations from manufacturers of General Hardware and Plumbing and Electrical Supplies.

### THE VALUE OF GOOD WINDOW DISPLAYS.

THE following communication from a well-known traveling salesman emphasizes the importance of effective window display and its influence on the sale of goods:

Much has been said of the rapid growth of the Western Hardware houses. The statement has been made that this remarkable growth has been due entirely to the great demands of a new rich country undergoing rapid settlement.

In a measure in some few cases this may be true, but as a rule the jobbing and retail Hardware business is better represented than the dry goods or clothing line throughout the far West. And these Western Hardwaremen are covering a much broader and more extended field than do the Hardware dealers in any other part of the world.

In the West, as in the East, there are many concerns who do a local jobbing trade in connection with their retail business. Much attention is given by such concerns to advertising and to window display.

In Spokane, Wash., a city of about 40,000, there are three large retail Hardware stores, two of which carry on an extensive local jobbing trade. It is safe to say that these houses carry larger stocks of Hardware and kindred goods than can be found in any like stores in an Eastern city of twice the size. Jensen, King, Byrd & Co. have worked up an extensive business in Tools, and although the concern have been established many years, they find that in this line especially trade responds quickly to window display. Not long ago a very attractive window display of Mechanics' and Carpenters' Tools was made. Mr. Jensen said he considered their window advertising the best investment—that sales would almost invariably increase on goods when they were attractively shown in the window.

Another enterprising concern of the Northwest are the

Honeyman Hardware Company of Portland, Ore. They are now occupying a large four-story building, recently built for their business. This concern's trade is largely wholesale, but a good retail business is also done. Mr. Honeyman is also a firm believer in advertising, and has given special attention to window displays. The windows are large and deep, with solid casing inside. The store is lighted by prisms above the windows. A very effective display of Carpenters' Tools was recently made by the company. In the foreground were Planes, Chisels and fine Tools; behind these Augers, Bits and Braces, and in the rear Levels and Plumb Lines, while for a background, attractively mounted on black cloth covered boards, were shown Saws of different kinds, Hammers and small Tools. The entire effect was very pleasing and attracted much attention. DUNSCOMB.

### WINDOW DISPLAY SUGGESTIONS.

BY C. G. AMBLER.

AS the average retail Hardware store is not large enough to require the full time and attention of one person for window dressing the show window is often neglected longer than it should be; not so much from an indifference or lack of appreciation of its value as because the clerks are busy about other work. To avoid such neglect it is a good plan to make it a practice to have regular days for changing the display and to put the work in charge of one clerk who shows an aptitude for it. Under encouragement he will often develop considerable skill.

#### ASSIST THE WINDOW DRESSER.

The kind of encouragement he needs is not only the word of approval for meritorious work, which is always helpful, but also the opportunity to carry out his plans without hindrance or frequent interruption. Given the assurance that he will be relieved of other duties while he is thus engaged, he will enter into it with enthusiasm and accomplish results. When he can use an assistant to advantage it will afford an opportunity to train another employee, who may be useful as a substitute in case of absence of the regular window dresser.

#### SUGGESTIONS.

Much delay and confusion may be avoided when making a change in the display if the work is well planned and the new goods are all prepared before the old ones are disturbed. An empty window is not a good advertisement.

It is not well to overcrowd the goods in the window. Enough space should be left between them to show the background, which causes the articles to stand out more distinctly.

Care should be taken not to hide small articles by placing them behind large ones. Let the large ones be arranged in the back and the small ones near the front.

Another mistake is the hanging of goods so high that they will not be generally noticed. It is also apt to interfere with the lighting of the window in the evening unless they are placed well back.

Some merchants make it a practice to place goods on the sidewalk in front of the window, thus either hiding the window display or preventing people from standing close enough to see it to advantage. I question if the outside show compensates for the detracting from the window.

#### FIXTURES AND BACKGROUND.

A variety of fixtures can be used, most of which, such as platforms, shelves, steps, racks, stands, &c., are best if portable, because of the variety in display which can be secured and also because all fixtures are not equally adapted to all goods. Easels, brackets and hooks will be suggested to the window dresser by the goods best shown by their use.

Sample boards form a neat method of showing lines of small goods and may be hung up in the store if desired after being used in the window. Convenient sizes range from 3 to 5 feet in length and proportionate width. They may be bordered with a light molding and covered with light colored cheese cloth, which forms a good background for most goods.



A small window can be greatly increased in effectiveness and apparent size by the use of mirror plate placed vertically in the back and on one side. For the best results it should extend from the bottom of the window to a height of 3 feet or more. If the mirrors are placed at right angles there will be four reflections of each article, which will thus be shown from all sides.

The background for the goods should not be showy, but of sufficient contrast in color to show the outlines of the goods distinctly. For bright goods black plush is often used with good effect. Dark goods look best on a light, plain color.

#### PRICE CARDS.

I believe that the free use of price cards with plain figures often helps to sell goods. The request for an article thus ticketed has been frequently accompanied by a remark to the effect that the price was lower than was expected. This led to the inference that the price card had something to do with the sale.

#### CHANGING DISPLAYS.

In order to keep the public interested it is desirable to change the display frequently. They will thus fall into the habit of looking there for something new and will so become better acquainted with the variety and nature of the stock in the store. Customers will sometimes take particular notice in a window of goods which they have passed many times in the store without any attention, even though they were placed conspicuously on the counters or shelves. This is shown by their remarks that they did not know the goods were kept there until they saw them in the window. An increased sale of some lines of goods frequently follows immediately after their appearance in the window for a few days, and that, too, when it could not be attributed to any other cause. If it is desired at any time to keep certain goods longer than usual before the public, interest in them may be revived by a new arrangement.

## HARDWARE FACTORY COST SYSTEMS.

THE interest taken by Hardware manufacturers in the subject of factory costs is indicated in the communications which have come to us relating to the articles on this subject which were contained in our last issue. The importance of the subject is generally recognized as well as the difficulty, in so varied and complicated a line as Hardware, of establishing and maintaining a system which, without being unduly cumbersome and therefore expensive, records in proper manner the cost of the various articles. We give below extracts from some of these letters, and also give further descriptions of methods which have been adopted with advantage by Hardware manufacturers in connection with their systems of ascertaining their factory costs.

#### Cost of Doing Business.

FROM A MANUFACTURER IN NEW YORK.—The writer of the article on factory costs evidently knew what he was talking about. He covered the ground very thoroughly. We think more articles of that kind would be of interest, as it is evident that many manufacturers do not know how to figure costs, and we are quite positive that some goods are being sold at an actual loss when manufacturers think they are making money, as they do not figure the real cost above material and labor.

Our factory being in another town we charge and credit our factory the same as if they were an outside party, and we are able to arrive at the exact cost of making the goods. We have discovered that we have not been adding enough for what we call incidentals, but have learned just what it costs. It is a much larger item than one would be led to believe without an actual test. To this, of course, we are obliged to add the cost of selling

an order, &c., but this is easily arrived at, as we have the exact figures. On some lines of goods we are satisfied the expense of doing business above cost of labor and material is from 33 1-3 to 50 per cent., and the manufacturer that only adds 10 or 20 per cent. for such charges comes out at the end of the year without making as much money as he expected.

#### Value of Information Given.

FROM A MANUFACTURER IN PENNSYLVANIA.—With reference to matter in the last issue of *The Iron Age* about Hardware factory expense, we beg to say to you, in all frankness, that we are confident that such information will be of great use and greatly appreciated by the manufacturers who read *The Iron Age*, and most manufacturers in Hardware lines certainly do read *The Iron Age*.

We believe that the system presented from the payroll of the A. B. Hendryx Company will be an eye opener to many concerns manufacturing other lines, and who have no means of knowing accurately which line is the most profitable.

#### Productive and Nonproductive Labor.

FROM A MANUFACTURER IN OHIO: We have read with considerable interest article of the Hardware manufacturer on page 65 of this week's *Iron Age*. If we were not sure that we had not written the article we would have supposed that the statement was our own method of figuring cost because it carries out exactly our method of figuring cost in our own plant. We have felt right along that that was the critical end of the manufacturing business, especially in lines where there are a good many different items, as there are in an ordinary Hardware manufacturing business.

We handle everything on the basis of productive and nonproductive labor, and we think it is the only practical way. While it does not give exact costs on any one single item, yet the aggregate is all right, and we have operated in this plant for a good many years proving our figures every 30 days on the basis of our payroll and general expense account, and are satisfied that it is as near correct as it is possible to get it; at least, we think it is, judging from our experience and others with whom we have talked.

#### On What Basis Should Nonproductive Cost Be Charged Up?

In the following letter the manufacturer who writes it expresses the desire for information in regard to the manner in which nonproductive cost should be charged up. Concerning this matter, in which there is a wide diversity of opinion and practice, we invite advices from manufacturers as to what method, all things considered, they deem the most correct and satisfactory. On this point our correspondent says:

The first article relates principally to productive labor cost. In the second article your correspondent has a true version, but unfortunately he leaves off the most important part—that is, on what basis to compute the percentage of nonproductive cost to material and producing labor. We do not know any subject that is more interesting or valuable to a manufacturer than ascertaining the best system on which to compute this percentage.

We must confess that we are not satisfied enough with our method to recommend it to any one else, and are in the position of your correspondent that we would like to hear from others in regard to it.

In all articles written on factory costs we have yet to find one that treats intelligently on this subject of basis of percentage. It must be acknowledged that the nonproductive cost is an item that should figure in with material and producing labor on each article to ascertain the correct cost. If a factory only manufactured one article this would be an easy matter, but where upward of a hundred or more different articles are manufactured, some with a larger percentage of material than others, also the same of labor, and each one to be placed on the market in competition with similar goods, it becomes very important to know the cost of each one, and the question is, "What is the basis of percentage to add to each one for nonproductive cost?"





provides for the entry of the following elements of cost as given in the headings of the several columns:

- Number of Chain.
- Weight per 1000 feet.
- Allowance for waste.
- Cost per pound of material.
- Net cost of material.
- Percentage for freight, cartage and handling.
- Cost of labor and repairs (figured from the machine record, shown in Fig. 2).
- Total cost.
- Percentage added to total cost for general expenses.

This last column gives the entire cost, including all factory and office expenses. The selling price is derived from it by simply adding the desired profit. These cards are kept for reference in the form of a card index in the superintendent's office.

A CONVENIENT PAY ROLL.

A CONVENIENT pay roll blank used by large Hardware manufacturers in Connecticut is shown in the accompanying illustration. The peculiarity of this blank is

WEEK ENDING	EARNED NET	DOLLARS				CENTS			
		10	5	2	1	25	10	5	1
Feb. 12, 1903.									
John Muller	27 00	20	5	2					
Peter A. Smith	18 75	10	5	2	1	75			
Sam. Lewinski	18 16	10	5	2	1		10	5	1
Geo. P. Moran	17 87	10	5	2		75	10		2
	17 3					50	20		
Seth Thompson	14 70	10							
Adam Jones	7 93		5	2		75	10	5	3
Paul E. White	4 12			4			10		2
	287 93	190	55	28	7	525	130	45	93

A Convenient Pay Roll.

that it shows the least amount of money in each denomination necessary to meet the weekly pay and has the advantage over other forms in that only the amount of money necessary to meet the pay roll need be drawn from the bank. By referring to the illustration it will be seen that opposite the name of each employee is placed the amount that he has earned during the week. To the right of this is shown the smallest number of ten, five and one dollar bills, and twenty-five, ten, five and one cent pieces necessary to make up the amount of money earned. At the bottom of the page the amount earned each week by all the men is totaled, as is also the amount in each denomination in which they are paid. To meet the pay roll, as shown in the illustration, there should be \$190 in ten dollar bills, \$55 in five dollar bills, \$28 in two dollar bills, \$7 in one dollar bills, \$5.25 in quarters, \$1.30 in dimes, 45 cents in nickels and 93 cents in one-cent pieces. If these are drawn from the bank, and each man's pay is counted out in the fewest possible pieces, the cashier will find he has just the right change for each envelope, and he will not have to draw a cent more than he has to pay out, as is generally done in order to make up the right change.

THE READING HARDWARE COMPANY, Reading, Pa., have recently secured the contract for Hardware for equipping the St. Francis Hotel at San Francisco. The consideration is said to have exceeded \$9000. Most of the Hardware is of special design, and the Knobs are of glass. The contract was placed through the company's Chicago office.

TRADE ITEMS.

THE PETERS CARTRIDGE COMPANY, Cincinnati, Ohio, are about to move their New York branch from 80 Chambers street, where they have a small portion of the building, to 98 Chambers street, all of which has been leased, the company retaining for their own use the store, two basements and two of the upper floors. This change is necessitated by the large and steady increase in volume of their Eastern business since the establishment of the branch about five years ago.

EAGLE LOCK COMPANY, who for 20 years have been located at 98 Chambers street, New York, will some time in April move to 105 Chambers street near Church street, where they will occupy the ground floor and basement and sub-basement, giving them greatly increased facilities. The company manufacture Cabinet, Trunk and Pad Locks, as well as various kinds of Special Hardware.

H. A. WHITTEMORE & Co., Boston, Mass., importers and wholesalers of Fishing Tackle and Skates, have removed from 50 Pearl street to 89 Pearl street, where they have double the floor space and much better facilities.

SARGENT & Co., 147-151 Leonard street, New York, have just issued for mail and counter distribution by merchants a series of eight small leaflets, envelope size, of illustrated matter relating to their Gem Food Chop-

per. They are printed in five different colors and four combinations of the colors, both sides being used. On one side recipes for various dishes are printed which will appeal to the housekeeper.

WHEN the Milmine Iron & Steel Company are thoroughly organized they will succeed H. B. Milmine & Co., Toledo, Ohio, carrying on the same line of business—Structural Steel work and Gray Iron Castings, and handling Wrought Iron, Steel and Cast Iron Material of all kinds. It is the intention of the company to extend the plant of H. B. Milmine & Co., as the present facilities are not capable of handling the business, which is steadily growing.

NATIONAL BRAKE-SHOE COMPANY have succeeded to the business of the Allston Foundry Company, with foundry at Allston, Mass., and office at 620 Atlantic avenue, Boston. The National Company will continue to manufacture the Walda Patent Sectional Sash Weight and the Ansley Patent Bell Top Sash Weight, also Special Weights and Castings, as heretofore.

JOHN S. HOLLER & Co., who for 32 years have been at 94 Duane street, near Broadway, have been compelled to move to other premises in consequence of the razing of a group of buildings at the above address to acquire a site for a large office building. They are now at 94 Reade street, between Church street and West Broadway. This concern are importers of lines of Scissors, Shears, Razors, Pocket Knives, &c., made in Solingen, Germany, and known to the trade as the Tower Brand.

## THE TRAVELING SALESMAN HIS METHODS AND CONTROL

BY SAMUEL MASTERS.

### CHAPTER XIII. Jobbers' System, No. 2.

THIS system can perhaps be best explained by example. It contemplates a much closer supervision of the territory by the credit and account department than the one previously described, and throws upon the salesman the duty of making collections as well as of selling goods.

#### The Outfit.

The salesman is furnished a loose leaf binder, containing forms like the one shown—a sheet for each customer. Upon the inside of the cover he finds a chart or key, reading in part as follows:

#### STIPULATIONS.

- A. Collect old indebtedness before selling.
- B. Allow 2 per cent. cash discount on account unpaid and not overdue.

5. When sales fall behind the limit, make earnest effort to increase them. Unless expressly stated to the contrary you can sell right up to the limit no matter what the condition of the account, but total indebtedness for old and new business must not exceed the limit named.
6. Observe and conform to the stipulations. Consult key on book cover.
7. "Last year's purchases" include all sales made in the month named in date. "This year's purchases" include sales in current year to date of writing.

#### The Year's History of the Account.

When first given him, at the beginning of the year, the sheet merely contains the address, town, his name and the route number, the limit fixed by the credit man, as the outside indebtedness desirable, the whole of last year's purchases (\$1140.26) and the purchases in the month of January of the previous year (\$146.07). The sheet is "written up" on January 10. There is no indebtedness, and hence nothing to collect; and in the stipulations he is urged to sell up to the limit. He takes orders amounting to \$170.16. At the end of the week, when making out his route sheet, he takes from the

LEDGER NO. <i>WA-1</i>	TOWN. <i>Ironville</i>	SALESMAN. <i>Harry Perkins</i>		ROUTE NO. <i>23</i>				
LEDGER FOLIO.	ADDRESS	STIPULATION.	DATE OF ENTRIES	SALES LIMIT	LAST YEARS PURCHASES	THIS YEARS PURCHASES	TOTAL UNPAID	PAST DUE
				<i>LDA -</i>	<i>1140 26</i>			
	<i>432</i>	<i>Burgess &amp; Loomis</i>	<i>F Jan 10</i>		<i>146 07</i>			
		<i>B</i>	<i>Feb 7</i>		<i>196 15</i>	<i>170 16</i>	<i>170 16</i>	
		<i>B</i>	<i>Mar 1</i>		<i>212 20</i>	<i>320 24</i>	<i>80 17</i>	
		<i>AB</i>	<i>Mar 3</i>		<i>212 20</i>	<i>411 15</i>	<i>171 08</i>	<i>50 17</i>
		<i>B</i>	<i>Apr 27</i>		<i>316 63</i>	<i>550 23</i>	<i>139 08</i>	
		<i>E</i>	<i>May 20</i>		<i>426 01</i>	<i>550 23</i>	<i>139 08</i>	
	<i>439</i>	<i>AC</i>	<i>June 16</i>		<i>610 02</i>	<i>550 23</i>	<i>139 08</i>	<i>139 08</i>
		<i>B</i>	<i>July 10</i>		<i>615 19</i>	<i>850 61</i>	<i>75 51</i>	
		<i>B</i>	<i>Aug 4</i>		<i>712 13</i>	<i>1003 82</i>	<i>153 21</i>	
		<i>B</i>	<i>Sept 2</i>		<i>914 00</i>	<i>1217 90</i>	<i>214 08</i>	
		<i>E</i>	<i>Sept 29</i>		<i>914 00</i>	<i>1217 90</i>	<i>214 08</i>	
		<i>CE</i>	<i>Oct 20</i>		<i>1012 91</i>	<i>1217 90</i>	<i>214 08</i>	<i>104 00</i>
		<i>C</i>	<i>Nov 15</i>		<i>1057 17</i>	<i>1217 90</i>	<i>214 08</i>	<i>214 08</i>
		<i>B</i>	<i>Dec 14</i>		<i>1140 26</i>	<i>1410 17</i>	<i>192 27</i>	

Jobber's Salesman's Customers' Record.

- C. Collect 6 per cent. per annum interest on overdue account.
- D. Make no sales. Collect all indebtedness, if any.
- E. Give no cash discount.
- F. Has no indebtedness. Sell to the limit, if possible.

There are other stipulations, their nature depending upon the character of the business and the part in it the salesman occupies. Also, possibly, some general instructions regarding the plan, which the managers at home think he needs.

#### On the Back of Each Form

is printed the following very explicit instructions:

1. Upon receipt of this bind it into your route book in the order in which it will come in covering your route.
2. At the end of the week in which you have called upon this firm, when you send in your weekly route list, remove this form from your book and mail it to us for revision. It will be returned before your next visit to this point with the condition of the account at the date of mailing.
3. In criticising the account or the limit write only on one side of a sheet, and on this subject only. Use the investigation blanks provided for such criticisms when possible.
4. Recommendations should be accompanied by facts to substantiate them. Limits are based upon such conditions as are known to us, and upon additional information may be greatly changed. Information is always acceptable. In all cases state authority.

cover this form and sends it to his house, where it is kept until his route sheet shows that he will again call upon this customer within a few days. Then it is again written to date and mailed to him, and furnishes him his basis upon which to work.

The form is rewritten on February 7. It shows the year's purchases so far have been \$170.16, the same being still unpaid. He is authorized to allow 2 per cent. cash discount, the rule being to accept payment with this discount on all unpaid indebtedness not overdue—billed since the salesman's last visit. He collects and makes sales amounting to \$150.08.

The March 1 report tells him that of his last sale, \$80.17 remains unpaid, and he is authorized to collect, allowing the customary 2 per cent. He fails to do so, but takes an order amounting to \$90.91.

On March 30 he is told that both the \$80.17 and the \$90.91 are unpaid, making a total indebtedness of \$171.08, \$80.17 of which is overdue. He is told to collect the old indebtedness before selling, and to allow 2 per cent. on the portion of account not past due. He collects and sells \$139.08 worth of goods.

April 27, the report shows his last bill not paid. He is told to allow the 2 per cent. cash discount, but is not able to collect and makes no sale.

On May 20 the \$139.08 is still unpaid. He is told to give no cash discount, as this is his second call since the



goods were sold. He sells nothing and collects nothing.

June 16 the \$139.08 is now past due, and the salesman is told to collect, with interest. He collects, and makes a sale, amounting to \$224.87, for which the dealer remits by mail, sending in a mail order for \$75.51.

July 10 the salesman is told that \$75.51 is unpaid, and is authorized to collect, less 2 per cent. This he does, and sells a bill of \$153.21.

August 4 the indebtedness is given as \$153.21, which he is told to collect, less the 2 per cent. discount. He collects, and sells a new bill of goods—\$214.08.

#### A Dispute Arises.

September 2 finds the \$214.08 unpaid, and is told to collect, less 2 per cent. There is some trouble over the bill which the salesman is unable to adjust, and he fails to collect. Makes no sale, the indebtedness being near the limit and the dealer not disposed to buy.

September 29 the form shows the \$214.08 still unpaid. Salesman is told to collect, without allowing a cash discount. Fails to do so, the account being still in dispute. Makes no sale.

October 20, \$104 of the total indebtedness is now past due. He is instructed to collect interest on overdue account, and to allow no cash discount on balance. Fails to do either.

November 15 the entire indebtedness of \$214.08 is now overdue, and he is instructed to collect with interest. The dispute having been settled and the dealer having evidently been in the wrong, the salesman is able to collect and takes an order amounting to \$192.27.

December 14 is told that the \$192.27 is unpaid, and is authorized to collect it, less 2 per cent. The amount of sales and resultant condition of the account will be shown upon the first report given him in the next year.

The sales limit has remained unchanged through the year, no facts having come up making either a reduction or increase desirable. The total sales show an increase over last year, despite the loss of business while the dispute was on.

### INSTRUCTIONS TO TRAVELING SALESMEN.

WE illustrate herewith some of the methods used by Carlin & Fulton, Baltimore, Md., in the direction of their traveling salesmen.

#### CORRECTION SHEET.

Fig. 1 illustrates a feature of their management in this department; each order received from the salesmen is carefully scrutinized, and any items to which it is desirable that the attention of the salesmen should be directed are marked on the correction sheet, as shown in the reduced fac-simile of one of these in Fig. 1.

**CORRECTION SHEET.**

Salesman John Smith

No. of Order 107 Date 9/6/03

REMARKS.—Where your attention is thereby called to errors in prices, etc., in orders please note the same at once to your office agent or collector to prevent a repetition of order.

ITEMS.	Sold at.	Correct Price.
Pocket Knife "x867"	1.00	1.50
Please refer to your sample book and see how much better you have this market correctly.		
Nails	2.00	2.50
You have not yet received circular letter "801" marked you advising you of the factory advance of 5 cents per keg making price now 2.40		
Acknowledge receipt of said circular letter on enclosed postal as soon as you get it—		

Fig. 1.—Reduced Fac-simile of Correction Sheet (Actual Size 5½ x 9½ inches).

#### CIRCULAR LETTERS TO SALESMEN.

The same firm number their circular letters consecutively and keep a book with the name of each salesman entered in it. As the circular letters are mailed to the salesmen they enter in this book the number of the letter and the address to which it is sent, and inclose with the letter a return postal, which they fill up themselves, and which the salesmen mails to them on receipt of letter. The list is checked when postals come back, and it is therefore easy to determine at a glance whether the information which has thus been transmitted to the sales-

Your letter of 30<sup>th</sup> instant, addressed to

John Smith has been received at

Freemansburg, Va. with prices on

Brought Davis and

But not

Circular letter 285

Fig. 2.—Salesman's Postal Card Acknowledgment of Instructions.

men has been duly received. We reproduce herewith in Fig. 2 one of these postals illustrating a supposititious case.

### A FINE EXHIBIT OF GAME ANIMAL HORNS.

THE H. & D. FOLSOM ARMS COMPANY have on exhibition at their store, 314 Broadway, New York, an exceedingly rare and valuable collection of Horns of game animals, whose habitat is principally in widely separated parts of Africa and Asia, the property of R. Gilfort, who has traveled extensively in these and other countries. There are in all 59 specimens, valued at from \$10 to \$150 each, according to their rarity, and to sportsmen, naturalists or any who are interested in such a collection they are well worth viewing. In the matter of Buffalo Horns there is a specimen each from India, Abyssinia; the Short Horn, Senegambia, West Africa; the Cape Buffalo, South Africa, and the American Buffalo, North America. There are two examples of each of the following, in some instances of both males and females—viz.: Greater Kudee, Somaliland, East Africa; Lesser Kudee, Northeast Africa; Sable Antelope, Nyassaland, Southeast Africa; Gemsbok, Southwest Africa; common Water Buck, German East Africa; Lichtensteins Hartbeest, Nyassaland; White Tailed Gnu, South Africa, said to be the rarest Horn in Africa; Wart Hog, South Africa; Wallers Gazelle, Somaliland, and Springbok, South Africa. The remainder are single pairs or one horn each, as the case may be—viz.: Roan Antelope, Abyssinia; Bokers Antelope, Sudan, Central Africa; Hunters Hartbeest, Southern Somaliland; Jacksons Hartbeest, British Central Africa; Cape Hartbeest, South Africa; Nyassaland Gnu, Brindled Gnu, British Bechuanaland, South Africa; Sassabi, South Africa; Arui, or Udad, North Africa; Persian Wild Goat; Arabian Ibex, Arabia; African Ibex, North Africa; Situtunga, Central Africa; Clarkes Gazelle, Central Somaliland; Soemmerrings Gazelle, Abyssinia; Blesbok, Bechuanaland; Bontebok, South Africa; Bushbuck, Northeast Africa; Cape Bushbuck, South Africa; East African Bushbuck and common Reed Buck, Angola, West Africa. Then there is the Nilgai, Peninsula of India; Banded Duiker, Sierra Leone, West Coast of Africa; Burmese Thameng, Burma; Siamese Thameng, Siam; Malayan Sambar or Equine Deer, Malay Peninsula; Bawian Deer from the Bawian Islands in the Java Sea; Pekin Dyboroskis Sika, North-eastern Manchuria; Swamp Deer, India; Steer from South Africa, and a Steer from Texas. The remaining examples are a Rhinoceros horn from South Africa, Sumatra Rhinoceros and a South African Hippopotamus.

THE CORTLAND SPECIALTY COMPANY, Cortland, N. Y., who are manufacturers of the Blacksmiths' Friend Banner Welding Compound, express their willingness to send samples free and to quote prices to jobbers and dealers.

## BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE,  
NORFOLK STREET, LONDON, W. C.

## The Week's Hardware Trade.

**B**USINESS lags; everybody waits for the turn of the quarter. Adverse influences are being felt. To begin with, the depression in the Northeastern shipping trade is having a bad effect upon manufacturers of metal goods in the Midlands. Again, the fluctuations in the Copper trade, coupled with complete uncertainty as to the future price of Copper and the complete absence of reliable statistics, is having a serious effect upon all industries affected by Copper. Then again the uncertain weather has led to irregularity in the demand for season goods. Thus the sale of Agricultural Tools and Machinery is below the average. Makers of Ship, Railway and Carriage Lamps are well employed, but the trade in Table Lamps is distinctly below par. Gas Fittings are in fairly good request, and the makers of Electric Light Fittings continue as they have been for some time past, busy. Good orders come in both to Birmingham, Wolverhampton and Sheffield for Edged Tools, particularly Cane Knives and Machetes for South American and West Indian markets, but the home trade in this branch is quiet, while Australian orders are below the average. To South Africa we are sending a good quantity of Kaffir Hoes and Tools suitable more particularly for Natal. From India and Ceylon a number of orders have been received for Road Making and Tea and Indigo Plantation Tools. Wrought Hollow Ware manufacturers are busy in Bowls, Buckets, Baths, Water Cans and Tea Kettles, but the prices, owing to severe competition, are not remunerative. Fish Hook and Table manufacturers are well employed, and Wire drawers, both in Steel and Copper, are in fairly good employment. Generally, the overseas account is normal.

The condition of trade in Sheffield is distinctly bad. In the building trades large numbers of men are idle or only part time engaged. The general experience in Sheffield is that there are more withdrawals from the local savings banks than deposits, while appeals to local tradesmen for credit are on the increase.

"The Sheffield Steel trade, so far as our experience goes," remarked the head of a well-known firm this week, "is only marking time." Users, he found, scarcely knew what to do. There could be no doubt that the Steel of the future, for many important purposes, will have to be of high speed qualities, and comparatively few of the present consumers have the machinery that can make full use of it. There is uncertainty as to the course they will have to take, and in the meantime orders are only given out to meet current requirements. On the other hand, there are up to date firms who have put down, or are having put down, the necessary machinery to enable them to make full use of high speed Steels. The advantages they offer are that they can work on harder material at a much higher speed, and take off a much thicker cut than the ordinary Steels. In other words, they do the same amount of work in about half the time. These Steels have come into much more rapid use on the Continent than in this country, and the sale of them is fast extending.

## American Files.

The Shewell view of American competition in Files is thus stated: A good deal has been said and written of late about the keenness of the competition of American manufacturers of Files, and how they were well-nigh running away with our trade. These statements have been "boomed" in our colonies and elsewhere, and there is reason to know that they have created not only a very unfavorable, but false, impression. From careful inquiries that have been made on behalf of Sheffield firms it would seem that the competition is far from *bona fide*. One example might be given. The American manufacturer charges his customer at home according to their File list of November, 1899, for half-round 6-inch bastards 7 shillings 6 pence per dozen net. The Sheffield list price is 7 shillings per dozen. The American maker offers his Files here at the same price, with 70 per cent. discount—reducing the figure to 2 shillings 1½ pence per dozen. Whatever Sheffield prices may be, the American goes one

better. The explanation is that rather than reduce their output, or increase stocks, or break their prices at home they send their surplus here or to the colonies, to be sold at any sacrifice. Our manufacturers complain that this is unfair competition, truly American, and it is not, it is said, confined to the File trade. If Sheffield takes this view of American competition in Files at a time when Files are in good request in America, what is going to happen to them when American manufacturers will be compelled to seek foreign markets, owing to trade depression at home?

## Flash Point Lamps.

It is quite on the cards that before long American Lamp manufacturers who would market their products in this country must watch the new legal flash point. A bill has been introduced into Parliament to give legislative effect to the intentions of Parliament, as expressed in the Petroleum act of 1871. That act placed legislative restrictions on the sale, keeping and carriage of Petroleum with a flash point under 100 degrees F. The flash point of Petroleum is the lowest temperature at which it begins to give off inflammable vapors. The act of 1871 prescribed a test, known as the open test, by which the flash point was to be determined. That test was, subsequent to the date of the 1871 act, found to be fallacious. Unless it was applied with extreme care and scientific accuracy the open test was found to be incorrect to the extent of approximately 27 degrees. In other words, if the flash point of any particular Oil was in reality 73 degrees F., the open test, as usually applied, showed its flash point to be 100 degrees. To correct the errors incident to the use of the open test the close test was devised by Sir Frederick Abel. The close test was made compulsory and the open test was abolished by the act of 1879. But by that act the restrictive legislation prescribed by the act of 1871 with regard to Petroleum with a flash point under 100 degrees F. was applied to Petroleum with a flash point under 73 degrees F. All Petroleum with a flash point above 73 degrees F. was thus, contrary to the 1871 act, freed from legislative restrictions. The purpose of this bill is to substitute the accurate or close test for the inaccurate or open test in the act of 1871, and to restore the 100 degrees flash point prescribed by that act.

## Gun Trade Politics.

A proposal is being considered by those interested in the manufacture of the Canadian weapon known as the Ross Rifle for the establishment of a factory in England. It is urged that the factory which is being founded at Quebec will have as much as it can do to meet the demands made upon it from the Dominion and the United States; and an English factory, it is thought, would meet both the home demand and that from the colonies. A further example of the weapon, by the way, is to be submitted to the War Office, in the hope of its adoption for the British Army.

A new development in the manufacture of Guns seems to be pending, and, if true, seals the doom of the Gun Barrel setter. For years the barrel setter has plied his task in fancied security, but now the shadow of the coming change looms large over him. Already it is mooted that the work has been satisfactorily accomplished without the aid of a keen eye and a cunning hand, both of which are the essential possessions of a good barrel setter. Whether the machine, with its delicate adjustment to the minute fraction of an inch, can perform the work as satisfactorily as the man, remains to be seen, but it is claimed that it can. For years past the barrel setter has been master and workman too, for few attain to the proficiency requisite to set a barrel. It needs a long apprenticeship, and entrance to the craft has been jealously guarded.

In proportion as their numbers have been few their wages have been high, and all sorts of stories have been prevalent as to the amount of money they have been able to earn during the recent boom in the Rifle trade in Birmingham, consequent on the demand for weapons for use in South Africa. Some say they have earned £15 and £16 a week, or even more. That is stated to be an exaggeration, but the fact remains that they were able



to make hay while the sun shone, a statement literally true, for barrel setting has been chiefly carried on in the daylight. It is possible to set a barrel by artificial light, but I think I am correct in stating that the best work is done in daylight.

Naturally, repeated attempts have been made to supplant the man by the machine, but the fact that the man has held his place, at least until recently, points to the fact that barrel setting machinery has hitherto proved unsuccessful. Now, however, it is said that the inventor has triumphed over his difficulties, and that in the matter of Rifles, at any rate, it will be possible in future to dispense with the barrel setter. Setters have either left or are about to leave the Birmingham Small Arms Factory, and henceforth perfectly true barrels will be produced by the machinery. The end has been attained by the addition of certain processes during the manufacture of the barrel. In due time, however, a full statement will probably be made on the subject. Whether or not the process will apply to all classes of barrels must for a time remain a matter of mere conjecture, but a gentleman who is prominently identified with the manufacture of high class Sporting Guns thinks that in their case the barrel setter will still be wanted. Even should that be so a number of workmen will certainly lose lucrative employment providing the new process proves the success foreshadowed. Fortunately the men affected are not numerous, for they have always been a close little corporation. Still it seems probable that one more ancient craft is destined to give place to the relentless advance of the machine.

#### American Cutlers Please Note.

Baulad Frères of Alexandria, Egypt, write to this country expressing a desire to enter into relations with a manufacturer of Cutlery, especially Knives used for cutting the threads of tobacco. They write: "The employment and demand for this article in Egypt is enormous at this time and, the manufacture of cigarettes being one of the greatest industries of this country, we could do well indeed with this article of manufacture, provided of course the price permits us to compete actively with the same thing from the hands of German and Belgian manufacturers." This appeal is addressed to English manufacturers, but of course American makers can try their best to secure a contract.

#### American and British Fishing Rods.

A side line in this country, which in angling districts is remunerative, is that of Fishing Rods. Those interested would do well to secure recent issues of a paper published in this country, called the *Fishing Gazette*, in which the merits and demerits of British and American Fly Rods were discussed. On the one side it was urged that the American made Rod, although lighter than the British, was as capable of doing its work as the heavier made British weapon. If that were true obviously it would be a great advantage to fish with the American Rod, for even a Fly Rod gets uncommonly heavy before a long day is done. At present, however, it cannot be said that a case has been made out for the American Rod. The question of weight must be considered with the question of equipoise, of power, and most certainly with the style of fishing in vogue and the weight of line in use. The last word, so far, has been with Hardy Bros. of Alnwick. They say that the same materials are in use in their factory as are worked up in the American rods; that they are ready and willing to turn out Rods to order at practically any weight which will hold their own against similar American Rods; but they go further and declare that for use in English waters their Rods are not too heavy; that to lighten them, no matter what material be used, means a sacrifice of power, and they are willing to match their Rods against any other maker's in the world. There seems some prospect of a competition being organized, the editor of the *Fishing Gazette*, R. B. Marston, having heartily supported the proposal.

#### German Exhibition in America.

It is stated that the German Government is being invited to give its support to a scheme for a permanent exhibition of German products and manufactures in the United States. The idea seems to be that the exhibition should be attached to the German Consulate-General in

New York, and that the Consul-General should be authorized to act as chief of a bureau in connection therewith, which shall receive and transmit orders for firms whose samples may be exhibited. It is also proposed that a corresponding branch be opened in Chicago, and possibly other cities.

#### Trade-Marks in India.

A complaint has recently been made by the well-known Cutlery firm in Sheffield, Joseph Rodgers & Sons, that goods made outside this country or British India can be imported into India, although bearing the name and trade-mark of a manufacturer carrying on business outside the limits of the United Kingdom or British India, providing such name and trade-mark is accompanied by a definite indication of the goods having been made or purchased in places beyond the limits of Great Britain and British India, and if the indication of the country in which the goods are made is in letters as large as any letter of the name and trade-mark. This is of course a serious weakness in the Indian law, and I advise those American manufacturers who expect in the future to trade with India, and who themselves have valuable trade-marks, to look out very carefully. A movement is on foot in this country to change the law, and the India Office is already being pressed to take action.

#### Prospects in Argentina.

I have once or twice reported that information from Argentina points to a period of prosperity in that quarter of the globe. I am glad to read from an official publication that this view is entertained by the authorities. The British *Chargé d'Affaires* at Buenos Ayres writes that the prospects of the Argentine Republic as regards the future have perhaps never been more favorable than at the present time. Undisturbed by any serious internal dissensions, freed from all danger of a war with the neighboring States, with her frontier line in the Andes (the cause of such long and angry litigation) soon to be definitely marked out, and with the promise of a rich harvest, this country can now turn all her energies to the development of her great agricultural and pastoral resources, to the increase of her trade and commerce, and to the general improvement of her economic condition. Certain reforms, more especially in the departments of finance and justice, are, however, urgently needed, and without them progress will be impeded, if not stayed altogether. The great cost of provincial combined with national government, and the incidence and weight of taxation, are at present serious obstacles in the path of prosperity. Trade has been burdened with imposts to the utmost limit. Imported goods are, as a rule, subjected to such high customs duties that commerce has fallen off very considerably. Home industries, on the other hand, are fostered at the expense of the consumer. Owners of landed property are but lightly taxed. Leagues upon leagues of fertile country are allowed, in many cases, to lie uncultivated and to remain uninhabited, thus giving no revenue to the exchequer. Only a small land tax is levied and no income tax exists. Once the financial condition has been placed on a satisfactory footing and taxation made lighter, once judicial reforms have been brought about, capital and labor will flow into the country and add strength and vitality to the healthy and rapid growth of a rich and flourishing republic.

#### South Africa.

It looks as if Joseph Chamberlain, the Colonial Secretary, had been doing a deal in the direction of a preferential tariff. It will be within the recollection of your readers that at the time Joseph Chamberlain's visit to South Africa was decided upon I warned American manufacturers that a preferential tariff might possibly spring out of his visit. The latest information is that the Inter-Colonial Conference has concluded a draft customs convention, which has been signed by the representatives of Cape Colony, Natal, Orange River Colony, the Transvaal and Southern Rhodesia. It is stated that this convention provides for preferential treatment of British goods and of the goods of such British colonies and possessions as may grant reciprocal privileges to the products and manufactures of South Africa. No particulars are available, but I hear through a private source that

the preferential tariff will represent a deduction of about 25 per cent.

The following extracts from a letter from South Africa should be thoughtfully considered by American exporters. This correspondent, writing to a Sheffield manufacturer, speaks about the "bounce of the Yankee." "Apart from timber articles," says this gentleman, "the American's exports of manufactured goods are surprisingly small, if people will only take the trouble to look into them. They do not exceed 7½ per cent. of the Hardware imports to South Africa. Yet to hear him talk and to read the vaporing of a certain halfpenny London daily you know one would think he did at least 77½ per cent." A statement was made by a member of the Trade Commission which made a flying trip recently round South Africa. It was to the effect that "English firms were not represented here at the close of the war to book orders, but the Americans and Germans were." This is declared to be absolute twaddle. "I am one of the oldest Hardware travelers in South Africa," continues the correspondent, "and can deny this person's silly statement. Travelers in all English lines were here all through the war and hundreds have been here for months past. Statements like these make us pray to be saved from our friends. I could furnish you with facts showing that Great Britain is well to the fore."

If all this talk of American competition in South Africa is mere froth, why exhibit so much annoyance?

#### A Note on Italy.

Troubles in the labor market have done for Italy what years of advice have failed to do in the extension of the adoption of machinery in farm labor. Many strikes took place, the most remarkable being an agricultural strike at harvest time in the southern provinces. The prompt result was a boom in the machinery trade, which is largely in British hands, and many farmers overcame their prejudice to machinery and purchased Reapers. One British firm did excellent business in Agricultural Implements, and these articles can now be pushed in the southern provinces with good effect. Thus the strike has only resulted in permanently doing away with much of the men's employment, although the farmers will have no cause to regret the introduction of more economical methods of working. Reapers and Winnowing Machines are now in greatest request, but there seems also to be an opening for Drills, which are but little used in Italy. They should not be too heavy; what is known as a "pony Drill" would be most useful, though in some of the plains a larger kind might be drawn by oxen. Cart horses, as we know them, are unknown in Southern Italy. The best horses are nags of about 15 hands. The Plows used in Southern Italy are extremely primitive, and a great deal of the threshing is still done with the flail.

#### AUTOMOBILE AND BICYCLE HORNS.

**C.** B. BARKER & CO., 93 Reade street, New York, wholesale dealers in all kinds of Bicycle and Automobile Material and Accessories, are handling a full line of Imported Horns with rubber bulbs for use on Automobiles, Bicycles, Carriages, &c. The Horns are carried in stock in many sizes, styles and finishes, straight and curved, in both polished brass and nickel plate. Some are made with flexible metallic coils, ranging from 3 to 6 feet in length, so that the Horns can be placed at otherwise inaccessible positions and worked either by foot or hand pressure. The Horns can be supplied with or without dust caps of wire gauze netting.

WEBSTER R. WALKLEY has received a multitude of letters from the trade in all parts of the country tendering sympathy in view of the recent death of his son, Winfield D. Walkley. These letters are indeed so many in number that it is impossible for Mr. Walkley to reply to them separately, and he asks that this general acknowledgment be accepted as an expression of his gratitude and appreciation.

#### CONTENTS.

	PAGE.
The Mesta Reversing Engines for Blooming Mill. Illustrated	1
The Machinists' Demands on Chicago Employers.....	2
Aultman, Miller & Co. in Receivers' Hands.....	2
Government Machinery Contracts.....	3
Catalogue Suggestions.....	4
The Globe Oblique Tumbling Barrel. Illustrated.....	5
Necessity for Good Patent Drawings.....	5
The Metal Trades Association.....	6
Western Electric Company's Vast Improvements.....	13
The Duty on Muck Bars.....	14
The Wood Universal Hydraulic Flanging Press. Illustrated	14
New England's Ultimate Dependence on Foreign Trade.....	15
The New Department of Commerce and Labor.....	16
The Wellman-Seaver-Morgan Company.....	17
The Philadelphia Foundrymen's Association.....	18
The Fish Lathe For Self Hardening Steel. Illustrated.....	18
The Largest Malleable Casting Plant.....	18
Lake Iron Ore Matters.....	19
The Blast Furnace Workers.....	19
Notes from Great Britain.....	20
New National Banks.....	21
The New Philadelphia Three-High Mill. Illustrated.....	22
Chicago's Demand for Business Methods.....	22
Obituary.....	23
Editorial:	
Employers' Associations.....	24
The Crop Outlook.....	24
Speculative and General Business.....	25
The Standard Motive Power Company.....	25
Interesting Labor News.....	26
The Schwartz Melting and Refining Furnace.....	26
The Edwards Oil Fuel Board's Report.....	27
Pig Iron Production at Record Rate.....	28
The Standard Scale & Supply Company, Limited.....	29
Birmingham.....	29
Manufacturing:	
Iron and Steel.....	29
General Machinery.....	30
Power Plant Equipment.....	30
Foundries.....	31
Bridges and Buildings.....	31
Fires.....	31
Hardware.....	31
Miscellaneous.....	31
Merger of Coke Companies.....	32
The Iron and Metal Trades:	
A Comparison of Prices.....	33
Chicago.....	33
Philadelphia.....	35
Cincinnati.....	36
Birmingham.....	36
Cleveland.....	37
St. Louis.....	37
Pittsburgh.....	38
Iron and Industrial Stocks.....	39
The McClure Company.....	39
New York.....	40
The New York Machinery Market.....	40
Metal Market.....	41
The Youngstown Iron Sheet & Tube Company.....	41
Ore Finding by Electricity.....	42
Personal.....	42
The United States Steel Corporation.....	43
The Malleable Iron Founders.....	44
Hardware:	
Condition of Trade.....	45
Notes on Prices.....	46
Death of P. H. Sternbergh.....	47
New England Iron and Hardware Association.....	48
Requests for Catalogues, &c.....	48
The Value of Good Window Displays.....	48
Window Display Suggestions.....	48
Hardware Factory Cost Systems.....	49
Bridgeport Chain Company's Cost System. Illustrated.	50
A Convenient Pay Roll. Illustrated.....	51
Trade Items.....	51
The Travelling Salesman—His Methods and Control. Ill.	52
Instructions to Traveling Salesmen. Illustrated.....	53
A Fine Exhibit of Game Animal Horns.....	53
British Letter.....	54
Automobile and Bicycle Horns.....	56
Death of Charles W. Hackett. Portrait.....	57
Baker-Vawter Company.....	57
Pease-Humphrey Hardware Company. Illustrated....	58
Gottfredson Bros. Hardware Company's Catalogue....	58
Sporting Goods as Hardware—Fishing Tackle.....	59
Among the Hardware Trade.....	60
Price-Lists, Circulars, &c.....	61
Miscellaneous Note:	
Aluminum Finished Hay Carriers.....	61
The Marvel Can Opener. Illustrated.....	61
Improved Clipper Lawn Mower. Illustrated.....	61
The Black Eagle Hatchet. Illustrated.....	62
Fairbanks Power Hack Saw. Illustrated.....	62
The Shelby Sash Lifters. Illustrated.....	62
The Standard Ball Bearing Philadelphia Caster. Illus.	62
Current Hardware Prices.....	63
Current Metal Prices.....	70



## DEATH OF CHARLES W. HACKETT.

**C**HARLES WESLEY HACKETT, president of the Hackett, Walther, Gates Hardware Company, St. Paul, Minn., died in that city March 21.

Mr. Hackett was born in Lyndeboro, N. H., July 3, 1831. In early life he worked in different stores in Boston, Mass., and Buffalo, N. Y., but came to Minnesota in 1856, where he located in Lake City, and had a general store, later opening the Lake City Bank, which was successfully conducted up to his removal to St. Paul.

During the Civil War he was a captain in the Tenth Minnesota Regiment and faithfully did his duty. He was a prominent member of the Loyal Legion and also of the Grand Army of the Republic. In 1873 he came to St. Paul, buying an interest in the firm of C. D. Strong & Co., which was then changed to Strong, Hackett & Chapin. This name was retained until Mr. Chapin's death in 1878, when it was changed to Strong, Hackett & Co. This firm was retained until 1885, when the firm was incorporated, and the name made Strong-Hackett Hardware Company, which style was continued until



CHARLES WESLEY HACKETT.

Mr. Strong retired from business, when the name was changed to the C. W. Hackett Hardware Company, which was retained up to last September, when, owing to Mr. Hackett's continued illness, the name was again changed to the present style, Hackett, Walther, Gates Hardware Company.

For the past three years, owing to increasing age and failing health, Mr. Hackett has not been actively engaged in the business of the firm except as an adviser, whose counsel was sought in matters pertaining to the larger interests of the firm.

He was instrumental in promoting the St. Paul National Bank and was for many years, and up to the time of his decease, its vice-president and a director. Mr. Hackett was for many years a member of the Park Congregational Church and prominent in that congregation, but during his later years was identified with the Christian Science Church.

During the 31 years that Mr. Hackett was in the wholesale hardware business he established and maintained a reputation for ability, honesty of purpose and desire to do right of which his family can well be proud.

In addition to his private business he spent time and energy to advance the interests and improve the conditions of both State and church. Those who knew him best can truly say that he was a patriot, citizen and Christian whose influence will be perpetuated through those with whom he came in contact. His acquaintance was very large among manufacturers and jobbers of hardware, who no doubt will regret his death.

At his death his family consisted of his wife and two married daughters, who have the sympathy of the entire community.

The following tribute to the memory of Charles W. Hackett is the official utterance of the St. Paul Chamber of Commerce, through its committee appointed for that purpose, consisting of Gen. T. B. Sanborn, R. A. Kirk and T. A. Abbott.

We are again called upon to pause and consider the life and death of one of our oldest and most highly esteemed members.

Capt. Charles Wesley Hackett, one of the ex-presidents of the Chamber, was born at Lyndeboro, N. H., on July 3, 1831, and died at St. Paul, Minn., on March 21, 1903. At the time of his death he was among the old settlers of the State, and had been a resident of the city of St. Paul for more than 30 years.

During his entire life he was a citizen without reproach, and his character and reputation for uprightness and integrity in all his dealings was as firm and unyielding as is the granite in the mountains of his native State. He was a gallant soldier, who did not hesitate to show his patriotism by his works. He discharged every duty devolving upon him in peace and in war, as citizen, soldier, merchant and neighbor, without hesitation and without stain or dishonor. He has been a zealous and active member of the patriotic societies of the city and State. As in war he was a reliable and faithful soldier, so in peace he was a most helpful and public spirited citizen. In 1873 he joined this Chamber, and for many years was one of its most useful and efficient members; becoming vice-president in 1891 and president in 1892. Upon removing to this city he became a member of the Hardware firm of C. D. Strong & Co., furnishing it not only new capital, but infusing into every department renewed energy and life, until at the time of his death it had grown to be one of the most successful and prosperous jobbing Hardware establishments in the Northwest.

Mr. Hackett was of modest and unassuming manner, but in character strong and steadfast. In business he pursued a conservative but clear sighted policy; in his dealings with men he was ever ready to co-operate with his fellows in doing good, and to lend a helping hand to the unfortunate, who in him have lost a true friend.

*Resolved*, That the Chamber of Commerce of the city of St. Paul express their condolence to the widow and members of the family of the deceased, and with them mourn the great loss that the city, the State and the nation have sustained in his death.

*Resolved*, That the secretary of the Chamber of Commerce forward a copy of this memorial and resolution to the widow of the deceased.

## BAKER-VAWTER COMPANY.

**B**AKER-VAWTER COMPANY, Chicago, Ill., accountants, auditors, devisers of business systems, &c., issue a variety of attractive printed matter calling attention in a striking way to what they have to offer to manufacturers and merchants. Their labor-saving methods for the office are referred to as simplifying the work of book-keepers so that they and their employers can tell the condition of the business with which they are identified at the end of each day. The cost of each department, the sales, the profits and proportion to be charged to general expense can easily be ascertained. Not only can the condition of the business as a whole or in part be told at a glance, but it is stated that the Baker-Vawter systems enable a manufacturer to know the exact cost of each piece or job, so that if there are any leaks they may be stopped at once, instead of waiting for the annual statement. The company are prepared to devise systems for all classes of business, and make the point that they aim to make the system fit the business and not the business the system.

D. R. SAUNDERS, Birmingham, Ala., has purchased the interests of W. T. Folsom and his associates in the Standard Stove Works, Fort Payne, Ala., and the Standard Basket Company, Wyeth City, Ala. It is understood that the consideration in the transaction was about \$40,000. The plants have both been successfully run by Mr. Saunders for the past eight years, and he will continue to operate them on practically the same basis as before the change. The offices and warehouses of both corporations are located in Birmingham, Ala.

# PEASE-HUMPHREY HARDWARE COMPANY.

THE PEASE-HUMPHREY HARDWARE COMPANY, West Superior, Wis., have made extensive improvements in the interior of their store, to which the

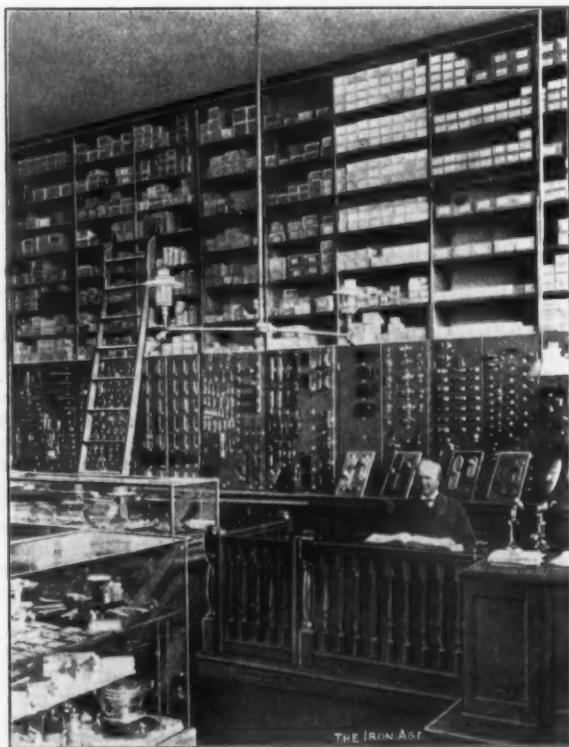


Fig. 1.—Builders' Hardware Department.

is devoted to Tools. A feature of the shelving is the method followed in sampling goods on doors. The doors are 5 feet high, covered with dark green billiard table cloth. All goods sampled on the doors are kept on the shelves behind the doors or in the same section above them. This plan of sampling goods is found to save a great deal of time in waiting on customers.

Much attention is given by the company to Sporting Goods, as indicated by Fig. 2, which shows a continuation of the center show case in Fig. 1, also a portion of the Sporting Goods department. This gives an excellent idea of the arrangement and display of Sporting Goods.

In Fig. 3 is illustrated a recent show window display of Mechanics' Tools made by the company. The floor portion of the display was upon a slanting floor which was raised 14 inches at the back, the floor being 5 feet wide. The back of the display was formed by making three large frames of rough lumber and covering them with red flannel. Board backs were put on the frames and the backs covered with black cloth. Brass Jack Chain put around the inside edge of the frame gave the effect of gilt beading. This window proved to be a great attraction to passersby.

## GOTFREDSON BROS. HARDWARE COMPANY'S CATALOGUE.

GOTFREDSON BROS. HARDWARE COMPANY, Green Bay, Wis., have just issued a catalogue of 1237 pages, 9¼ x 12 inches in size, bound in flexible leather covers. The line of goods included are Hardware, Cutlery, Sporting Goods, Sheet Metals, Harness and Strap Work. Colored page illustrations show the company's offices and main building, also their warehouse on dock. The catalogue contains an index of the ten departments into which the goods are divided, in addition to an al-



Fig. 2.—Sporting Goods Department.

accompanying illustrations relate. An idea of the size of the establishment may be gained from Fig. 3, which represents one of the show windows.

In Fig. 1 is shown a part of the right-hand side of the store looking from the front. A portion of the center show case is included in the cut, also of the Builders' Hardware department. Beyond the latter the shelving

phabetically arranged index of 32 pages. Axes, Hatchets and other goods are illustrated in colors. One hundred and sixty-four pages are devoted to Harness and Strap Work of the company's manufacture. A large line of Saddlery Hardware is also shown. A special feature of the Builders' Hardware department is the manner in which the different designs are grouped together, making it con-



venient for dealers when sorting up on these goods. In addition to this catalogue the company have just issued a separate Bicycle Sundries catalogue, and have had both the Harness and Sporting Goods sections bound separately for distribution to the different classes of trade. The large catalogue is of a good quality of paper, fully illustrated, well arranged and substantially bound and will, no doubt, be appreciated by and be of great service to the company's trade. The company are to be congratulated upon their enterprise in getting out such a fine catalogue, especially as this is the first they have issued.

## SPORTING GOODS AS HARDWARE—FISHING TACKLE.

BY A SPECIAL CONTRIBUTOR.

**T**HERE is no doubt that Sporting Goods can be very successfully handled in the Hardware store. The sale is increasing each year. Gun Goods and Loaded Shells are now sold by many Hardwaremen, who have not as yet taken up the sale of some other kinds of Sporting Goods which are more profitable. One of these lines is Fishing Tackle.

The Hardware merchant may fear the detail or it

just as apt to give him a Hook suitable for a cod fish when he was going trout fishing, as we were to give anything he wanted; but we found that a great many of our friends were fishermen, and they were interested in our line of Tackle, and gave us a great deal of advice—some of which was valuable, and some that was not. We soon realized that we could not carry all the kinds of Fishing Tackle that our friends suggested, or we would be obliged to open another store. But by adding to our line goods for which we had a continued demand, we soon increased our stock to where it compared favorably with any similar stock in the city, and at the end of the second season we found that we had acquired a reputation of having the best goods in town.

### A SPECIAL MAN.

We had found, however, that it was advisable for us to put in a special man, one who had some knowledge of fishing and Tackle, to take charge of this department. Under this arrangement our Fishing Tackle business was, in a way, kept separate from our other business and created much less confusion than when all our salesmen tried to sell Fishing Tackle.

### DOES IT PAY?

There is a fair profit in the line, and with us the business comes at a season when the Hardware business is naturally dull and helps very well to fill in. We made attractive window displays throughout the summer, changing these once a week, and we found that this not only

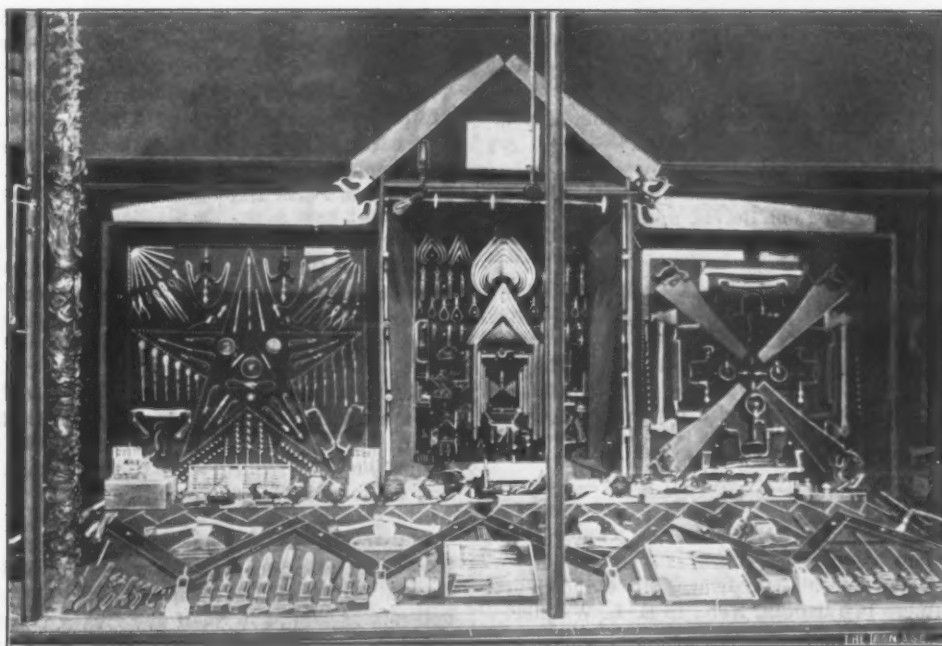


Fig. 3.—Display of Mechanics' Tools.

may be that he is not aware of the possibilities of business in this line. The experience of others who have recently added Fishing Tackle may be of value to such merchants. The business of selling any Sporting Goods, and more especially Fishing Tackle, can well be likened to an undeveloped mine—there is money in it, but it must be opened up and developed. Demand is often made for these goods by properly showing and advertising them.

In an interview with a well-known New England merchant, your correspondent was told how this Hardware concern had made a success of Fishing Tackle. The merchant in response to the question, "What is your experience?" said:

We put in our first stock of Fishing Tackle the summer before last, going into it at first in a rather small way, as we had some hesitancy in regard to our ability to handle the line. It was an entirely new line with us, as we had never before carried even a Fish Hook, and neither ourselves nor any of our salesmen had the slightest knowledge of Fishing Tackle.

Our first stock was bought of a jobber, who assisted us by being conversant with the demand in our locality for Tackle.

### A HARD PROPOSITION.

At first we thought we were up against rather a hard proposition, as we had little idea what a customer wanted when he called for a certain Hook or Bait. We were

sold Tackle, but brought attention to our store. We feel that even though the Fishing Tackle might not in itself represent much profit, it would more than pay for itself as an advertising medium. All things taken into consideration, the Fishing Tackle business had proved most satisfactory.

The experience of this house is of especial interest, because of the fact that the field in this line seemed pretty well occupied in their city. There were two years ago no less than ten stores handling Fishing Tackle, including three exclusive Sporting Goods stores, and one cut price department store, where extensive stocks were carried. Also from the fact that the fishing about the city is not especially good, and is of large variety, being salt water and both trout and bass fresh water fishing. This, of course, increases the variety of stock to be carried and of necessity adds to the detail.

### ENTERPRISE AND WORK.

The adding of any new line or, in fact, the increasing of the business in any way of course means additional work, but by giving some one clerk the responsibility of the department the business can be worked up with but little friction. The success of any new line depends in no small measure on proper advertising, and this is especially true of Fishing Tackle. Putting in a line of Fish-

ing Tackle should be followed up by good advertising, and advertising must be followed up by goods well displayed, reasonably priced and intelligibly shown.

### AMONG THE HARDWARE TRADE.

C. E. Smith, Port Arthur, Texas, has disposed of his Hardware and furniture business to Crowell & Gifford, who will continue at the old stand. Mr. Gifford has managed the business for some time.

Phillips Hardware Company have recently commenced the wholesale and retail business in Hardware, Stoves, Tinware, Sporting Goods, Agricultural Implements, &c., at Cambridge, Md.

J. F. Chiles has been succeeded in business in Conway, Iowa, by Rutledge, Tucker & Co., C. F. Israel, manager. The Harness shop has been refitted and enlarged.

Stakebake & McVey have succeeded Ogier Bros., Menlo, Kan. They have moved the stock into a new building, and have materially increased the quantity of goods carried.

Trulock-Powell Hardware Company have embarked in business at Monticello, Ga., handling Shelf and Heavy Hardware, Stoves and Tinware, Agricultural Implements, Sporting Goods, &c.

Geo. E. Hartung has lately commenced the Agricultural Implement business in Homer, Mich.

H. G. Duncan, Lineville, Iowa, has disposed of an interest in his business to Lem Belvel, and the new style is Duncan & Belvel.

L. L. Tongish has purchased the business of the Beaver Valley Hardware Company in Herndon, Kan.

T. H. Dickinson has purchased the interest of the late L. P. Dunning in the firm of Dunning & Dickinson, at Champlain, N. Y., and has formed a copartnership with William Broder. The business will be continued under the firm style of T. H. Dickinson & Co.

J. W. McKee has disposed of his Hardware and furniture business in Cosby, Mo., to F. E. Kline.

P. H. Pursel has sold his Hardware, Stove and Sporting Goods business in Lushton, Neb., to E. L. Wagner.

Otto Hardware Company have purchased Morgan Bros. Hardware stock at Wapello, Iowa.

Seyler Hardware Company, Marietta, Ohio, will shortly be incorporated with a capital stock of \$100,000, succeeding J. Seyler & Bros., who established the business in Marietta in 1870.

John W. Cramer has been taken into partnership with H. Jason Knapp and A. W. Smith, who formerly composed the Knapp & Smith Hardware Company, North Tonawanda, N. Y., and the style has been changed to the Knapp Hardware Company. Mr. Cramer is a practical Hardwareman of many years' experience. Other changes in connection with the reorganization are enlarged capital and plans for big increase in facilities for carrying on the wholesale and retail Hardware business. The present stock building on Manhattan street is much too small and a large warehouse will soon be built in the rear of the present store. The tin shop, now located on the second floor of the present building, will be moved into the new building, to give better facilities for the display of stock. The first floor front of the store will be remodeled, with a view to providing attractive and up to date show windows and entrance.

Louis M. Pettitt, Willis E. Pettitt and John W. McDowell have commenced business in Akron, Ohio, under the style of Pettitt Bros. & McDowell. They will deal in

Shelf and Heavy Hardware, Stoves, Tinware, Sporting Goods, Agricultural Implements, &c. The members of the new firm were formerly connected with May & Fieberger for 9, 12 and 11 years, respectively.

Snyder & Bullock, York, Neb., have been succeeded in the Hardware, Stove, Agricultural Implement, Sporting Goods, Glassware and plumbing and heating business by Hartman & Bullock.

Allen-Edmondson Hardware Company have been organized at Van Buren, Ark. The members of the firm are R. P. Allen and T. W. Edmondson. They have purchased the Hardware and furniture stock formerly carried by the Boston Store Company.

Duncan & Kinsey have succeeded W. E. Duncan in the Hardware, Stove and Agricultural Implement business in Hylton, Texas.

Carpenter & Hamblin have disposed of their stock of Hardware, &c., at Nappanee, Ind., to Howenstein, Burback & Rusher, who continue at the old stand, and have bought the stock of Hardware, Stoves, Tinware, Paints and Oils formerly carried by W. J. & W. A. Newcome, South Haven, Mich., where they are now located.

The firm of Hamblet & Hayes have lately been incorporated under the laws of Massachusetts and will hereafter be known as the Hamblet & Hayes Company. The new company will conduct the stores at 13 and 15 Lowell street, Peabody, and 6 High street, Boston, and will carry a larger and more complete stock than ever. The company deal in Hardware, Sporting Goods, Seeds, Fertilizers, Farm Implements, Paints, Oils, &c.

William Winslow, dealer in Hardware, &c., and E. J. Winslow & Co., plumbing and heating, Bennington, Vt., have consolidated their interests under the style of Winslow & Remington, who will continue in the same lines as heretofore.

J. D. Patton has purchased the Shelf and Heavy Hardware and Mining Supply business of B. E. Salmon, in Lead, S. Dak. New stock has been added, and the store altered and overhauled, so as to present a more attractive and up to date appearance.

The Coffin-Clinton Hardware Company, Boise, Idaho, have been incorporated with a capital of \$75,000. They succeed Coffin & Northrup Company in the wholesale and retail business in Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Sporting Goods, &c. The officers of the new company are as follows: F. R. Coffin, president; D. E. Clinton, Jr., vice-president; E. H. Foster, secretary, and C. H. Coffin, treasurer. This business was established in 1866 by F. R. Coffin and was incorporated in 1892 as the Coffin & Northrop Company by F. R. Coffin, W. N. Northrop and C. J. Northrop. The Northrop brothers are no longer identified with it, having sold their interest and gone into the exclusively wholesale business.

Collins & Sherer have purchased the Hardware business of the O. C. McFarland Company, Moscow, Idaho.

P. K. Rebok of Sioux Falls, S. D., but formerly in business for many years at Toledo, Iowa, has returned to the latter point, where he has bought out the retail business of W. M. Connell & Co., which he will manage and conduct under his own name. Mr. Rebok will still continue his financial interest in the Sioux Falls Hardware Company.

John W. Ross & Co., Connersville, Ind., have dissolved. The Hardware business will hereafter be conducted by Conner & Lewis at the old stand.

The firm of Beach & Weld, dealers in Hardware, Sioux City, Iowa, have been dissolved. The business will be continued at the same stand by Weld Hardware Company.



## PRICE-LISTS, CIRCULARS, &c.

THE STANDARD CASTER & WHEEL COMPANY, 318-326 East Twenty-third street, New York: Standard Ball Bearing Casters. A catalogue illustrates the various kinds manufactured by the company.

OATMAN BROTHERS, Medina, Ohio: Illustrated catalogue and price-list of Eave Trough Hangers, Adjustable Hoops for Tubs, Pails and Barrels; Feed Measures, Chalk Line Reels, Wash Basin Bracket, Cobblers' Sets, &c.

STEINFELD BROS., 547 Broadway, New York: Illustrated catalogues relating to Go-Carts, Baby Carriages, Wooden Ware, Furniture Specialties, Lawn and Summer Goods and Refrigerators.

THE INTERNATIONAL STEEL POST COMPANY, 719 Chestnut street, St. Louis, Mo.: Illustrated catalogues of Wrought Iron and Steel Fences, Iron and Steel Fence Posts, Hand Fence Machines, Fire and Water Proof Paint, &c.

PETER GRAY & SONS, 88-90 Union street, Boston, Mass., manufacturers of Lamps, Lanterns and Heavy Tinware and workers of metals, and whose business is now located upon the original site of the famous Green Dragon Tavern, issue an interesting pamphlet devoted largely to a sketch of this historic landmark.

GAAR, SCOTT & Co., Richmond, Ind.: Illustrated catalogue of Threshing Machinery. This includes Portable Engines, Threshers, &c.

THE MCLENNAN PAINT COMPANY, Buffalo, N. Y.: Onyx Paints. Catalogues are devoted to Paints, Varnishes, Dipping and Brushing Paints, &c.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Thirty-two-page pamphlet catalogue of the Stevens Rifle Telescopes, a branch of manufacture they took over some time ago from the Cataract Tool & Optical Company, Buffalo, N. Y., engaging the services of their manager and expert, F. L. Smith, to conduct this department. Telescopes are made for rifle and pistol shooting, one of the newest being the Multiscope, with from 6 to 12 powers in the one instrument, seven different diameters being instantly obtained at the will of the marksman.

GREENE, TWEED & Co., 17 Murray street, New York: A series of illustrated catalogues. One illustrates and describes Brass Specialties in 104 large pages, including many kinds of Hinges, Lifts, Hooks, Pulleys, Catches, Bolts, Brackets, Box Corners and similar goods. Another containing 56 pages, same size, relates to Mill Supplies, such as Belt Studs and Couplings, Wrenches, Packings, Polishing Leathers, &c. The third, of 48 smaller pages, is confined entirely to their new improved Rochester Automatic Lubricator for various kinds of engines.

BUTLER BROS., Chicago: Booklet entitled "More Business," which goes in much detail into methods for "branching out," inaugurating bargain departments, &c. Illustrations are given of racks, counters, tables and other devices designed to promote the sale of goods, together with valuable suggestions as to how to conduct successfully a bargain department.

WM. A. STOKES & Co., 30 Warren street, New York: House Furnishing Woodenware. The catalogue illustrates Step Ladders, Clothes Bars, Ironing Stands, Kitchen Safes, Shoe Polishing Cases, Commodes, Wall Cabinets, &c. We are advised that a new line of Medicine Cabinets are now about ready for shipment. These are antique designs, finished in weathered oak and English oak.

THE WM. FRANKFURTH HARDWARE COMPANY, Milwaukee, Wis.: Catalogue No. 90, devoted to Cycle Supplies.

## MISCELLANEOUS NOTE.

### Aluminum Finished Hay Carriers.

F. E. Myers & Bro., Ashland, Ohio, have recently prepared circulars descriptive of the new Myers hay unloader carrier in aluminum print to indicate the finish they are putting on the carriers. The circular shows dealers the exact finish of the completed goods, which possess new features. The aluminum and color finish is referred to as nonrusting.

## The Marvel Can Opener.

The Kalischer Mfg. Company, Cleveland, Ohio, have recently placed on the market the can opener shown herewith. The blades are made of cold rolled steel, sharpened and tempered, and the spring is of piano wire. In use the opener works with a shear action. Among the points of merit claimed for the opener are the following: That it protects the fingers and hands



*The Marvel Can Opener.*

from the tin, that it does not slip out of the can while being operated, that it is sanitary, there being no corners to harbor dirt, and that it is simple, easily worked, strong and cheap. The opener is designed to retail for 15 cents each.

## Improved Clipper Lawn Mower.

The Reading Hardware Company, Reading, Pa., who recently secured the control of the Clipper lawn mower, formerly manufactured by the Clipper Lawn Mower Company, Norristown, Pa., are offering the mower in improved form, as shown in the accompanying cut. The driving wheels, which were formerly made solid and in-



*Improved Clipper Lawn Mower.*

cased with heavy plates of metal on the inner sides, have been changed to spoked wheels, greatly reducing the weight of the mower. An improvement in the adjustment prevents the knives resting on the ground. Minor improvements have also been made, and the company are offering the machine in its new form, confident that it will meet a good demand from the trade.

### The Black Eagle Hatchet.

The accompanying cut represents an all steel hatchet, offered by Warren McArthur, 46 Lake street, Chicago, Ill. The hatchet has a tubular steel handle and a steel

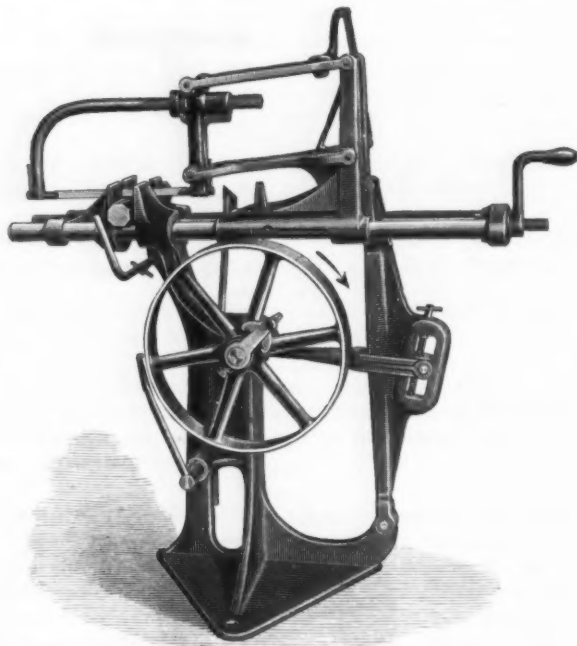


*The Black Eagle Hatchet.*

pole. The pole is made by bending a piece of heavy metal in U shape. The pole and handle are riveted to the head under heavy pressure, so as to insure their never coming apart. The blade is oil tempered, and the entire tool is well finished in black enamel.

### Fairbanks Power Hack Saw.

The Fairbanks Company, corner Elm and Broome streets, New York, have just put on the market the Fairbanks power hack saw, here illustrated. It is compact, self contained, of high grade at moderate cost, and uses saw blades from 9 to 14 inches long, although intended especially for blades up to 12 inches in length. The cutting is done on the backward stroke with the weight of saw frame and levers lifted off the blade on its forward or idle stroke. A spring tension acting on the saw frame is provided, being more effective and convenient than the weight commonly used. The connection from



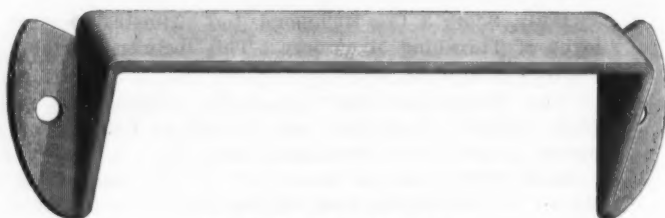
*Fairbanks Power Hack Saw.*

the pulling end of the saw blade to the main lever is rigid. The steel overhanging saw arm gives a constant tension to the blade, and permits of the quick insertion of blades or changing for different lengths. The stroke of the saw blade is readily changed, while the machine is in motion, thus utilizing the full length of the blade for effective work. There is provision for adjusting the saw blade to make it cut straight or squarely through a piece of stock, even when the blade has more clearance or is duller on one side than the other. It is fitted with a driving clutch that locks the crank to the driving pulley without end friction on the bearings with its conse-

quent loss of power. There is also an adjustable automatic stop that will always check the machine when the cut is finished. The stop may be quickly set to stop the machine when the saw has cut partly through the material, and, it is said, it will operate positively to within 1-32 inch from the point where it is desired to end the cut. Other characteristics are the ease and rapidity with which the machine can be handled.

### The Shelby Sash Lifters.

The Shelby Spring Hinge Company, Shelby, Ohio, have put on the market sash lifters, as illustrated herewith. The one shown in the upper cut has a round bar, and is made from one piece of sheet metal. The other lift-

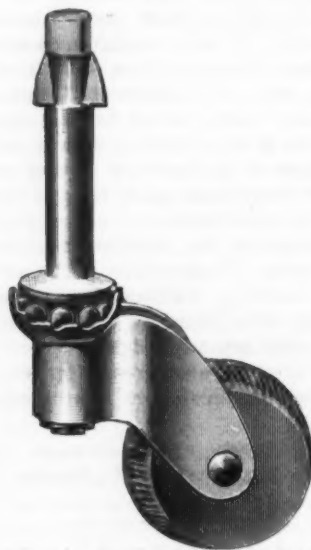


*The Shelby Sash Lifters.*

er is also made from one piece of sheet metal, and is wide enough to give room for four fingers when lifting the sash. Both of the lifters are made of steel, brass and bronze, and finished in any of the hard wood finishes, and are furnished with round head screws to match.

### The Standard Ball Bearing Philadelphia Caster.

The Standard Caster & Wheel Company, 318-326 East Twenty-third street, New York, have recently placed on the market the drive caster herewith shown. It is remarked that this is the first one of its kind put on the



*The Standard Ball Bearing Philadelphia Caster.*

market. Furniture houses throughout the country are alluded to as using this in preference to the older forms of drive casters. The caster is made in five sizes and eight styles of finish. Nos. 2, 3, 4 and 5 require a 15-64 inch bit stock drill hole, while No. 6 requires a 9-32 inch bit hole.





**Cartridges—**

Blank Cartridges:	
38 C. F., \$5.50.....	10¢55
38 C. F., \$7.00.....	10¢55
22 cal. Rim., \$1.50.....	10¢55
32 cal. Rim., \$2.75.....	10¢55
B. B. Caps, Con., Ball Sgnd.....	\$1.90
B. B. Caps, Round Ball.....	\$1.40
Central Fire.....	25¢
Target and Sporting Rifle.....	15¢10
Primed Sells and Bullets.....	15¢10
Rim Fire Sporting.....	50¢
Rim Fire Military.....	15¢50

**Casters—**

Bed.....	70¢70¢10¢
Plate.....	60¢70¢10¢
Philadelphia.....	75¢75¢10¢
Boss.....	70¢10¢
Boss Anti-Friction.....	70¢10¢
Martin's Patent (Phoenix).....	45¢
Standard Ball Bearing.....	45¢
Tucker's Patent low list.....	50¢

**Cattle Leaders—**

See Leaders, Cattle.

**Chain, Coll—**

American Coll. Jobbers' Shipments:	
3-16 1/4 4-16 3/4 7-16 1/2 9-16	
8-16 1/2 4-16 3/4 5-16 3/4 5-16	
3/4 3/4 3/4 1 to 1 1/4 inch.	
3.61 3.55 3.50 3.40 per 100 lb.	
German Coll.....	60¢10¢10¢

**Halters and Ties—**

Halter Chains.....	60¢10¢10¢10¢
German Halter Chains, list July 24.	
'97.....	60¢10¢10¢10¢
Cow Ties.....	50¢10¢60¢

**Trace, Wagon, &c.—**

Traces, Western Standard: 100 pair	
6 1/2-6 3/4, Straight, with ring.....	\$27.00
6 1/2-6 3/4, Straight, with ring.....	\$33.00
6 1/2-6 3/4, Straight, with ring.....	\$33.00
6 1/2-6 3/4, Straight, with ring.....	\$37.00
Add 2¢ per pair for Hooks.	
Total Traces 2¢ per pair higher than	
Straight Link.....	

Trace, Wagon and Fancy Chains.....

50¢10¢10¢10¢

**Miscellaneous—**

Jack Chain, list July 10, '93:

Iron.....60¢10¢10¢10¢

Brass.....60¢10¢10¢10¢

Safety Chain.....70¢10¢10¢55¢

Gal. Pump Chain.....lb. 4@44¢

Covert Mfg. Co.....

Breast.....40¢25¢

Halter.....40¢25¢

Heel.....40¢25¢

Rein.....40¢25¢

Stallion.....40¢25¢

Covert Saddle Works.....

Breast.....70¢

Halter.....70¢

Hold Back.....70¢

Rein.....70¢

Oneida Community.....

Am. Coll. and Halters.....40¢45¢55¢

Am. Cow Ties.....45¢10¢

Eureka Coll and Halter.....45¢50¢55¢

Niagara Coll and Halter.....45¢50¢55¢

Niagara Cow Ties.....45¢50¢10¢55¢

Wire Dog Chains.....45¢50¢55¢

Dog Chain.....70¢10¢

Universal Dbl-Jointed Chain.....50¢

**Chalk—(From Jobbers.)**

Carpenters' Blue.....gro. 40¢15¢

Carpenters' Red.....gro. 35¢10¢

Carpenters' White.....gro. 30¢35¢

See also Crayons.

**Checks, Door—**

Bardsley's.....40¢10¢

Columbia.....50¢10¢

Eclipse.....60¢

**Chests, Tool—**

American Tool Chest Co.:

Boys' Chests, with Tools.....55¢

Youths' Chests, with Tools.....45¢

Gentlemen's Chests, with Tools.....35¢

Farmers', Carpenters', etc., Chests,

with Tools.....30¢

Machinists' and Fitters' Chests,

Empty.....50¢

C. E. Jennings &amp; Co.'s Machinists' Tool

Chests.....33¢10¢

**Chisels—**

Socket Framing and Firmer

Standard List.....70¢70¢10¢

Buck Bros.....30¢

Charles Buck.....30¢

C. E. Jennings &amp; Co. Socket Firmer

No. 10.....60¢10¢

C. E. Jennings &amp; Co. Socket Framing

No. 15.....60¢10¢

Swan's.....70¢

L. &amp; J. J. White.....30¢30¢55¢

**Tanged—**

Tanged Firmers.....40¢50¢10¢

Buck Bros.....30¢

Charles Buck.....30¢

C. E. Jennings &amp; Co. Nos. 19, 181

L. &amp; J. J. White, Tanged.....16¢10¢

**Cold**

Cold Chisels, good quality, lb. 13¢15¢

Cold Chisels, fair quality, lb. 11¢12¢

Cold Chisels, ordinary, lb. 8¢9¢

**Chucks—**

Beach Pat., each \$5.00.....35¢55¢

Pratt's Positive Drive.....25¢

Empire.....25¢

Blacksmiths.....25¢

Skinner Patent Chucks:

Combination Lathe Chucks.....40¢

Drill Chucks, Patent and Standard.....25¢

Drill Chucks, New Model.....25¢

Independent Lathe Chucks.....45¢

Improved Planer Chucks.....40¢

Universal Lathe Chucks.....40¢

Face Plate Jaws.....40¢

Standard Tool Co.:

Improved Drill Chuck.....45¢

Union Mfg. Co.:

Combination.....40¢

Gear Drill.....30¢

Geared Scroll.....30¢

Independent.....40¢

Union Drill.....30¢

Universal.....40¢

Face Plate Jaws.....40¢

Wescott Patent Chucks.....35¢

Lathe Chucks.....50¢

Little Giant Auxiliary Drill.....	40¢
Little Giant Cable Grip Drill.....	40¢
Little Giant Drill, Improved.....	40¢
One da Drill.....	40¢
Scroll Combination Lathe.....	40¢

**Clamps—**

Adjustable, Hammers'.....	20¢20¢55¢
Cabinet Sargent's.....	50¢10¢
Carriage Makers, P. S. & W. Co.....	50¢
Carriage Makers' Sargent's.....	60¢
Beary, Parallel.....	33¢10¢
Linemans' U-dia Drop Forge & Tool Co.....	40¢
Saw Clamps, see Vices, Saw Filers.....	

**Cleaners, Drain—**

Iwan's Champion, Adjustable.....55¢

Iwan's Champion, Stationary.....40¢

**Sidewalk—**

Star Socket, All Steel.....\$4.05 net

Star Shank, All Steel.....\$3.24 net

W. &amp; C. Shank, All Steel, 7/8 in. \$ doz.,

\$3.05; 8 in., \$3.10; 8 1/2 in., \$3.25.

**Cleavers, Butchers'—**

Foster Bros.....30¢

New Haven Edge Tool Co.'s.....45¢

Fayette R. Plumb.....33¢10¢10¢

P. S. &amp; W.....50¢50¢55¢

L. &amp; J. J. White.....30¢

**Clippers—**

Chicago Flexible Shaft Company:

'93 Chicago horse.....\$8.75

1902 Chicago Horse.....\$10.75

Lightning Belt.....\$15.00

Chicago Belt.....\$29.00

Stewart's Patent Sheep.....\$18.50

**Clips Axle—**

Eagle and Superior 1/4 and 5-16

inch.....70¢10¢

Norway, 1/2 and 5-16 inch.....70¢10¢

**Cloth and Netting, Wire**

See Wire, &amp;c.

**Cocks, Brass—**

Hardware list.....

Compression and Plain Bibbs.....

65¢50¢65¢10¢

Globe, Kerosene, Racking, &amp;c.....

Cocks.....65¢10¢70¢

Coffee Mills—See Mills, Coffee.

**Collars, Dog—**

Brass, Walter B. Stevens &amp; Son's list.....40¢

Embossed, Gilt, Walter B. Stevens &amp;

Son's list.....30¢10¢

Leather, Walter B. Stevens &amp; Son's list.....40¢

**Combs, Mane and Tail—**

Covert's Saddlery Works.....60¢10¢

**Compasses Dividers, &c.—**

Ordinary Goods.....75¢75¢55¢

Bemis &amp; Call Hdw. &amp; Tool Co.:

Dividers.....65¢

Callipers, Call's Patent Inside.....55¢

Callipers, Double.....55¢

Callipers, Inside or Outside.....55¢

Callipers, Wing.....50¢

Compasses.....50¢

J. Stevens A. &amp; T. Co.....25¢10¢

**Compressors Corn Shock—**

J. B. Hughes' \$ doz.....\$2.50

**Conductor Pipe, Calva.—**

L. C. L. to Dealers: Not needed.

Eastern.....75¢75¢55¢

Central.....75¢25¢55¢

Southern.....70¢75¢55¢

S. Western.....65¢10¢10¢

Terms: 2¢ for cash. With delivery on

full crates.

See also Eave Troughs.

**Coolers, Water—**

Gal. each.....3 4 6 8

Labrador \$1.20 \$1.50 \$1.80 \$2.10 2.70

Gal.....3 4 6 8

Ice-lined, ea. \$1.50 \$2.10 \$2.40 \$3.00

Gal.....2 3 4 6 8

Galv. Lined Ea. \$1.85 \$2.00 \$2.25 \$2.50 \$3.00

Gal.....2 3 4 6 8

Galv. Lined side handles

Gal.....2 3 4 6 8

Ech. \$1.85 \$2.15 \$2.40 \$3.50 \$4.15, 25¢

**Coopers' Tools—**

See Tools, Coopers.

**Cord—Sash—**

Braided, Drab.....lb. 25¢

Braided, White, Com. lb. 17¢10¢

Cable Laid Italian, lb. A, 10c; B, 10c

Common India.....lb. 9¢

Cotton Sash Cord, Twisted.....12¢10¢

Patent Russia.....lb. 13¢10¢

Cable Laid Russia.....lb. 13¢10¢

India Hemp, Braided.....lb. 14¢15¢

India Hemp, Twisted.....lb. 10¢12¢

Patent India, Twisted.....lb. 10¢12¢

Anniston Cordage Co.:

Old Glory, Nos. 7 to 12.....\$ 24 24 24 24 24 24

Anniston, Nos. 7 to 12.....\$ 19 19 19 19 19 19

Old Colony, Nos. 7 to 12.....\$ 18 18 18 18 18 18

Anniston Drab, Nos. 7 to 12.....\$ 24 24 24 24 24 24

Pearl Braided, cotton.....\$ 24 24 24 24 24 24

Massachusetts, White.....\$ 24 24 24 24 24 24

Massachusetts, Drab.....\$ 24 24 24 24 24 24

Eddystone Braided Cotton.....\$ 19 19 19 19 19 19

Harmony Cable Laid Italian.....\$ 18 18 18 18 18 18

Ossawun Mills:

Crown, Solid Braided White.....\$ 22 22 22 22 22 22

Braided, Giant, White.....\$ 20 20 20 20 20 20

Peerless:

Cable Laid Italian.....16¢

Cable Laid Russian.....14¢

Cable Laid India.....12¢

Braided India.....12¢

Phoenix, White.....18¢

Samson, Nos. 7 to 12.....19¢

Braided, Drab Cotton.....\$ 32 32 32 32 32 32

Braided, Italian Hemp.....\$ 32 32 32 32 32 32

Braided, Linen.....\$ 49 49 49 49 49 49

Braided, White Cotton, Spot.....\$ 28 28 28 28 28 28

No. 6 cords, 1¢ extra.

Silver Lake:

A quality, Drab, 40¢.....15¢

A quality, White, 35¢.....15¢

B quality, Drab, 35¢.....15¢

B quality, White, 30¢.....15¢

Italian Hemp, 40¢.....15¢

Linen, 57¢.....15¢

Wire Picture.....

List Oct. '00.....85¢10¢85¢10¢55¢

Crackers, Nut—

Little Giant.....\$ gr. \$34.00

Cradles—

Grain.....50¢

Crayons—

White Round Crayons, gross, 5 1/4¢ Cc

Cases, 167 gro., \$4.50, at factory.

D. M. Stewart Mfg. Co.

Metal Workers' Crayons, gr. \$2.50	
Soapstone Pencils, round, flat	20¢
or square.....gr. \$1.50	
Rolling Mill Crayons.....gr. \$2.50	
Railroad Crayons (compo-	
sition) gr. \$2.00.....	Case lots

See also Chalk.

**Crooks, Shepherds'—**

Fort Madison, Heavy.....\$ doz. \$7.00

Fort Madison, Light.....\$ doz. \$6.50

**Crow Bars—See Bars, Crow.****Cultivators—**

Victor Garden.....50¢

**Cutlery Table**

International Silver Company:

No. 12 Medium Knives, 184.....\$ doz. \$3.50

Star, Eagle, Rogers &amp; Hamilton and

Anchor.....\$ doz. \$3.00

Wm. Rogers &amp; Son.....\$ doz. \$2.50

Smeon L. &amp; Geo. H. Rogers Company:

12 doz. Medium Knives.....\$ doz. \$3.00

No. 77 Medium Knives.....\$ doz. \$2.50



## Gates, Molasses and Oil— Stabilizer Pattern.

80¢@90¢10¢

## Gauges—

Marking, Mortise, &c. 50¢10¢@50¢10¢  
Fulton's Butt Gauge. 30¢10¢  
Stanley R. & L. Co.'s Butt & Rabbit Gauge. 90¢20¢10¢10¢

Wire, Brown & Sharpe's. 25¢  
Wire, Morse's. 25¢  
Wire P. S. & W. Co. 30¢10¢

## Climets— Single Cut—

Nail, Metal, Assorted, gro. \$1.50@1.67  
Spike, Metal, Assorted, gro. \$2.80@3.25  
Nail, Wood Handled, Assorted, gro. \$1.75@2.00  
Spike, Wood Handled, Assorted, gro. \$3.25@3.50

## Glass American Window

Jobbers' List, Dec. 16, 1902.  
From store, Single and Double 90¢10¢  
F. O. B. Factory, carload lots:  
Single and Double 90¢20¢25¢  
2000 box lots. 90¢25¢

## Glue—Liquid, Fish—

List A, Bottles or Cans, with Brush. 57¢@50¢  
List B, Cans (½ pts., pts., qts.) 35¢@45¢  
List C, Cans (½ gal., gal.) 25¢@45¢  
International Glue Co. (Martin's) 45¢10¢@50¢

## Grease, Axle—

Common Grade. gro. \$5.00@6.00  
Dixon's Everlasting. 10-lb pails, ea. 85¢  
Dixon's Everlasting, in bxs. 1 lb. \$1.30; 2 lb. \$2.00

## Griddles, Soapstone—

Pike Mfg. Co. 33½¢@39½¢10¢

## Grindstones—

Bicycle Emery Grinder. 80.50  
Bicycle Grindstones, each. \$2.50@3.00  
Pike Mfg. Co.:  
Improved Family Grindstones, per inch, per doz. \$2.00 (89½¢)  
Pike Mow's Kulte and Tool Grinder, each. \$9.00  
Velox Ball Bearing, mounted, Angle Iron Frames. each, \$3.25

## Guards Snow—

Cleveland Wire Spinning Co.:  
Galv. Steel #1000. \$9.00  
Copper #1000. \$18.00

## Halters and Ties—

Covert Mfg. Co.:  
Web. 45¢25¢  
Jute Rope. 40¢45¢25¢  
Sisal Rope. 20¢45¢  
Covert's Saddlery Works:  
Web and Leather Halters. 70¢  
Jute and Manila Rope Halters. 70¢  
Sisal Rope Halters. 40¢20¢  
Jute, Manila and Cotton Rope Ties. 70¢  
Sisal Rope Ties. 60¢10¢

## Hammers—

Handled Hammers—  
Heller's Machinists'. 40¢10¢40¢10¢10¢  
Heller's Farriers'. 40¢10¢40¢10¢10¢  
Magnetic Tack, Nos. 1, 2, 3, \$1.25, \$1.50, \$1.75.  
Peck, Stow & Wilcox. 50¢  
Fayette H. Plumb.  
Plumb, A. E. Nail. 75¢75¢@35¢11¢75¢  
Engineers' and B. S. Hand.  
50¢75¢35¢50¢10¢75¢25¢  
Machinists' Hammers 10¢50¢30¢10¢35¢  
Riveting and Tinner's.  
40¢25¢@40¢10¢25¢40¢

## Heavy Hammers and Sledges—

3 lb. and under. lb. 45¢ 75¢50¢75¢  
5 to 10 lb. lb. 90¢ 10¢  
Over 10 lb. lb. 30¢  
Wilkinson's Smith's. 95¢@10¢ lb.

## Handles—

Agricultural Tool Handles—  
Axe, Pick, &c. 50¢@50¢55¢  
Hoe, Rake, &c. 60¢@60¢55¢  
Lo k, Shovel, Spade, &c.:  
Long Handles. 60¢  
D Handles. 50¢

## Cross-Cut Saw Handles—

Atkins'. 40¢55¢  
Champion. 40¢45¢10¢  
Dission'. 40¢45¢10¢

## Mechanics' Tool Handles—

Auger, assorted. gro. \$2.30@2.50  
Brad Axl. gro. \$1.25@1.50  
Chisel Handles:  
Apple Tanged Firmer, gro. ass'd. \$2.25@2.35; large, \$2.50@2.60.  
Hickory Tanged Firmer, gro. ass'd. \$1.75@2.20; large, \$3.50@3.70.  
Apple Socket Firmer, gro. ass'd. \$1.70@1.85; large, \$2.00@2.25.  
Hickory Socket Firmer, gro. ass'd. \$1.60@1.75; large, \$1.75@2.00.  
Hickory Socket Framing, gro. ass'd. \$2.50@2.75; large, \$2.65@2.85.  
File, assorted. gro. \$1.00@1.15  
Hammer, Hatchet, Axe, &c. 50¢  
Hand Saw, Varished, doz 70¢75¢  
Not Varished. 55¢@60¢  
Plane Handles:  
Jack, doz. 55¢; Jack Bolted. 55¢@60¢  
Fore, doz. 35¢@38¢; Fore, Bolted. 70¢75¢  
Millers Falls Adj. and Ratchet Auger Handles. 15¢10¢  
Nicholson Simplicity File Handle, #30. 80¢@85¢10¢

## Hangers—

Barn Door, New Pattern, Round Groove, Regular:  
Inch. 3 4 5 6 8  
Single Doz. \$0.85 1.20 1.50 1.90 2.30  
Barn Door, New England Pattern, Check Back, Regular:  
Inch. 3 4 5 6  
Single Doz. \$1.10 1.60 2.15 2.70  
Allith Mfg. Co. Reliable. per doz. \$15.00

## Chicago Spring Butt Co.:—

Friction. 25¢  
Oscillating. 25¢  
Big Twin. 25¢  
Chisholm & Moore Mfg. Co.:  
Baggage Car Door. 50¢  
Elevator. 40¢  
Railroad. 55¢  
Cronk & Carrer Mfg. Co.:  
100's Axle. 60¢  
Roll & Bearing. 60¢10¢

Lane Bros. Co.:  
Parlor Ball Bearing. 44.15  
Parlor Standard. 33.35  
Parlor New Model. 33.85  
Parlor New Champion. 32.25  
Barn Door, Standard. 50¢10¢10¢  
Covered. 50¢10¢10¢  
Special. 50¢10¢10¢35¢

Lawrence Bros.:  
Advance. 40¢  
Cleveland. 60¢10¢  
Crown. 60¢  
Giant. 50¢10¢  
New York. 60¢  
Peerless. 60¢10¢  
Sterling. 60¢  
Swing, No. 95. 50¢10¢  
Union, No. 44. \$5.00; No. 45 \$7.00; No. 46, 60¢.

McKinley Mfg. Co.:  
No. 1, Special. \$15. 60¢10¢  
No. 2, Standard. \$18. 60¢10¢  
Hinged Hangers, \$16. 50¢  
Meyers' Stayon Hangers. 50¢10¢ (net)

C. S. Smith Mfg. Co.:  
Lundy Parlor Door. 50¢10¢  
Monarch Barn Door. 60¢10¢  
Never Jam Hinge. 50¢10¢  
Peerless. 60¢10¢  
Perfection. 70¢55¢  
Phoenix. 70¢55¢  
Wagon's Adjustable. 70¢10¢  
Wareho. & Anti-Friction. 90¢

Richards Mfg. Co.:  
Pioneer Wood Track No. 3. \$2.25  
Imp'd Wood Track No. 5. \$2.25  
Imp'd Steel Track No. 7. \$2.70  
Ball Brg' Steel Track No. 9. \$2.50  
Ball Brg' Steel Track No. 10. \$2.50  
Roller Brg' Steel Track No. 11. \$2.45  
Roller Brg' Steel Track No. 12. \$2.40  
Ball Brg' Steel Track No. 13. \$2.75  
Roller Brg' Steel Track No. 14. \$2.65  
Ball Brg' Trolley Track No. 15. 40¢  
Ball Brg' Trolley Track No. 19. 40¢55¢  
Ball Bearing Tandem Trolley Track No. 16. 40¢

Stent Adjustable Track No. 18. 40¢  
Auto Adjustable Track No. 22. 40¢  
Trolley B. D. No. 17. \$1.60  
Trolley F. D. No. 120. \$2.70  
Trolley F. D. No. 121. \$2.55  
Trolley F. D. No. 151. \$2.50  
Roller Bearing B. D. No. 2. 70¢55¢  
Roller Bearing U. S. B. D. 70¢55¢  
Anti Friction B. D. 60¢10¢  
Ives' Wood Track No. 1. \$2.15  
Ives' Imp'd Wood Track No. 2. \$2.15

Stowell Hinge and Foundry Co.:  
Atlas. 40¢  
Badger Barn Door. 50¢  
Baggage Car Door. 50¢  
Climax Anti-Friction. 50¢  
Elevator. 40¢  
Express. 50¢  
Interest. 60¢  
Lundy Parlor Door. 50¢  
Magic. 50¢  
Matchless. 60¢  
Nansen. 60¢10¢  
Railroad. 50¢  
Street Car Door. 50¢  
Steel, Nos. 400, 404, 500. 40¢15¢  
Stowell Parlor Door. 50¢  
Wild West, Nos. 302, 404, 500. 50¢  
Zenith for Wood Track. 50¢

A. L. Sweet Iron Works:  
Eagle. 60¢10¢  
Perfection. 50¢10¢  
Pilot. 60¢  
Taylor & Boggis Fy Cos. 50¢15¢10¢55¢  
Wilcox Mfg. Co.:  
Bike Roller Bearing. 60¢10¢  
C. J. Roller Bearing. 60¢10¢  
Cyl. Ball Bearing. 40¢  
Dwarf Ball Bearing. 40¢  
Ives, Wood Track. 60¢10¢  
L. T. Roller Bearing. 60¢10¢55¢  
New Era Roller Bearing. 50¢10¢  
O. K. Roller Bearing. 60¢10¢55¢  
Grindie, Wood Track. 60¢  
Richards' Wood Track. 90¢  
Richards' Steel Track. 50¢10¢  
Spencer Roller Bearing. 60¢10¢  
Tandem Nos. 1 and 2. 90¢  
Underwriters' Roller Bearing. 40¢  
Velox. 40¢  
Wilcox Auditorium Ball Bearing. 30¢  
Wilcox Barn Trolley No. 121. 40¢  
Wilcox Elev. Door, Nos. 12 and 125. 50¢  
Wilcox Elev. Door, No. 132. 40¢  
Wilcox Fire Trolley, Roller Bearing. 30¢  
Wilcox Le Roy Noiseless Ball Bearing. 40¢  
Wilcox New Century. 50¢10¢10¢  
Wilcox O. K. Steel Track. 50¢  
Wilcox O. K. Trolley. 50¢  
Wilcox Trolley Ball Bearing. 40¢  
Wilcox Wiseman Narrow Gauge. 40¢  
For Track, see Rail.

## Hangers, Gate—

Myers' Patent Gate Hangers, ½ doz., net, \$1.50

## Hasps—

McKinney's Perfect Hasp ½ doz. 50¢

## Hatchets—

Best Brands. 50¢@50¢10¢  
Cheaper Brands. 50¢@60¢10¢  
Note.—Net prices often made.

## Hinges—

Blind and Shutter Hinges—  
Surface Gravity Locking Blind—  
(Victor; National; 1883; C. P. Niagara; Clark's O. P.; Clark's Tip; Buffalo.)  
No. 1. 1 5 5  
Doz. pair. \$0.35 1.75 3.50

Mortise Shutter:  
(L. & P. O. S., Dixie, &c.)  
No. 1. 1 3 2 2 ½  
Doz. pair. \$0.70 65 60 55  
Mortise Reversible Shutter, (Buffalo, &c.)  
No. 1. 1 1 ½ 2  
Doz. pair. \$0.5 1.0 65

## North's Automatic Blind Fixtures, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50

Parker. 70¢75¢  
Reading's Gravity. 75¢10¢  
Sargent's, Nos. 1, 3, 5, 11 & 13. 70¢10¢70¢20¢

Stanley's Steel Gravity Blind Hinges, ½ doz. sets, without screws, \$8.80; with screws, \$1.15.  
Wrightsville Hardware Co.:  
O. S. Lull & Porter. 7 & 55¢  
Acme, Lull & Porter. 75¢  
Queen City Reversible. 75¢  
Stenger's Positive Locking, Nos. 1 & 5. 70¢10¢  
Shepard's Noiseless, Nos. 60, 65, 65. 70¢10¢

Niagara, Gravity Locking, Nos. 1, 3 & 5. 75¢  
1885, Old Pat'n, Nos. 1, 3 & 5. 75¢  
Tip Pat'n, Nos. 1, 3 & 5. 75¢  
Buffalo Gravity Locking, Nos. 1, 3 & 5. 75¢  
Shepard's Double Locking, Nos. 20 & 25. 70¢  
Champion Gravity Locking, No. 75. 75¢  
Steamboat Gravity Locking, No. 10. 75¢  
Pioneer, Nos. 60, 45 & 54. 75¢  
Empire, Nos. 101 & 103. 70¢  
W. H. Co.'s Mortise Gravity Locking, No. 2. 60¢

Gate Hinges—  
Clark's or Shepard's—Doz. sets:  
No. 1. 1 2 3  
Hinges with Latches. \$2.00 2.70 5.00  
Hinges only. \$1.10 2.05 5.30  
Latches only. 70 70 35

New England:  
With Latch. doz. \$2.50  
Without Latch. doz. \$1.80  
Reversible Self-Closing:  
With Latch. doz. \$1.80  
Without Latch. doz. \$1.45

Western:  
With Latch. doz. \$1.80  
Without Latch. doz. \$1.30  
Wrightsville Hardware Co.:  
Shepard's or Clark's, doz. sets,  
No. 1. 1 2 3  
Hinges with Latches. \$2.00 2.70 5.00  
Hinges only. 1.10 2.05 5.30  
Latches only. 70 70 35

Spring Hinges—  
Holdback, Cast Iron, gro. \$9.50@10.50  
Non-Holdback, Cast Iron gro \$7@7.50  
J. Bardley  
Bardley's Patent Checking. 15¢  
Bommer Bros.:  
Bommer Ball Spring Floor Hinges 40¢  
Bommer Spring Hinges. 40¢  
Chicago Spring Butt Co.:  
Chicago Spring Hinges. 25¢  
Triple End Spring Hinges. 50¢  
Chicago (Ball Bearing) Floor Hinge. 45¢  
Garden City Engine House. 25¢  
Kendall's Floor Door. 35¢  
Columbian Hall Co.:  
Acme, Wrt. Steel. 30¢  
Acme, Brass. 30¢15¢  
American. 30¢  
Columbia, No. 14. 40¢ gr. 80.00  
Columbia, No. 18. 40¢ gr. 85.00  
Columbia, Adjustable, No. 7. 30¢ gr. 12.00

Gem, new list. 30¢  
Oxford Leaf. 30¢ gr. \$12.50  
Oxford, new list. 30¢  
Hoffman Hinge & Foundry Co.  
No. 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090, 2100, 2110, 2120, 2130, 2140, 2150, 2160, 2170, 2180, 2190, 2200, 2210, 2220, 2230, 2240, 2250, 2260, 2270, 2280, 2290, 2300, 2310, 2320, 2330, 2340, 2350, 2360, 2370, 2380, 2390, 2400, 2410, 2420, 2430, 2440, 2450, 2460, 2470, 2480, 2490, 2500, 2510, 2520, 2530, 2540, 2550, 2560, 2570, 2580, 2590, 2600, 2610, 2620, 2630, 2640, 2650, 2660, 2670, 2680, 2690, 2700, 2710, 2720, 2730, 2740, 2750, 2760, 2770, 2780, 2790, 2800, 2810, 2820, 2830, 2840, 2850, 2860, 2870, 2880, 2890, 2900, 2910, 2920, 2930, 2940, 2950, 2960, 2970, 2980, 2990, 3000, 3010, 3020, 3030, 3040, 3050, 3060, 3070, 3080, 3090, 3100, 3110, 3120, 3130, 3140, 3150, 3160, 3170, 3180, 3190, 3200, 3210, 3220, 3230, 3240, 3250, 3260, 3270, 3280, 3290, 3300, 3310, 3320, 3330, 3340, 3350, 3360, 3370, 3380, 3390, 3400, 3410, 3420, 3430, 3440, 3450, 3460, 3470, 3480, 3490, 3500, 3510, 3520, 3530, 3540, 3550, 3560, 3570, 3580, 3590, 3600, 3610, 3620, 3630, 3640, 3650, 3660, 3670, 3680, 3690, 3700, 3710, 3720, 3730, 3740, 3750, 3760, 3770, 3780, 3790, 3800, 3810, 3820, 3830, 3840, 3850, 3860, 3870, 3880, 3890, 3900, 3910, 3920, 3930, 3940, 3950, 3960, 3970, 3980, 3990, 4000, 4010, 4020, 4030, 4040, 4050, 4060, 4070, 4080, 4090, 4100, 4110, 4120, 4130, 4140, 4150, 4160, 4170, 4180, 4190, 4200, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4280, 4290, 4300, 4310, 4320, 4330, 4340, 4350, 4360, 4370, 4380, 4390, 4400, 4410, 4420, 4430, 4440, 4450, 4460, 4470, 4480, 4490, 4500, 4510, 4520, 4530, 4540, 4550, 4560, 4570, 4580, 4590, 4600, 4610, 4620, 4630, 4640, 4650, 4660, 4670, 4680, 4690, 4700, 4710, 4720, 4730, 4740, 4750, 4760, 4770, 4780, 4790, 4800, 4810, 4820, 4830, 4840, 4850, 4860, 4870, 4880, 4890, 4900, 4910, 4920, 4930, 4940, 4950, 4960, 4970, 4980, 4990, 5000, 5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090, 5100, 5110, 5120, 5130, 5140, 5150, 5160, 5170, 5180, 5190, 5200, 5210, 5220, 5230, 5240, 5250, 5260, 5270, 5280, 5290, 5300, 5310, 5320, 5330, 5340, 5350, 5360, 5370, 5380, 5390, 5400, 5410, 5420, 5430, 5440, 5450, 5460, 5470, 5480, 5490, 5500, 5510, 5520, 5530, 5540, 5550, 5560, 5570, 5580, 5590, 5600, 5610, 5620, 5630, 5640, 5650, 5660, 5670, 5680, 5690, 5700, 5710, 5720, 5730, 5740, 5750, 5760, 5770, 5780, 5790, 5800, 5810, 5820, 5830, 5840, 5850, 5860, 5870, 5880, 5890, 5900, 5910, 5920, 5930, 5940, 5950, 5960, 5970, 5980, 5990, 6000, 6010, 6020, 6030, 6040, 6050, 6060, 6070, 6080, 6090, 6100, 6110, 6120, 6130, 6140, 6150, 6160, 6170, 6180, 6190, 6200, 6210, 6220, 6230, 6240, 6250, 6260, 6270, 6280, 6290, 6300, 6310, 6320, 6330, 6340, 6350, 6360, 6370, 6380, 6390, 6400, 6410, 6420, 6430, 6440, 6450, 6460, 6470, 6480, 6490, 6500, 6510, 6520, 6530, 6540, 6550, 6560, 6570, 6580, 6590, 6600, 6610, 6620, 6630, 6640, 6650, 6660, 6670, 6680, 6690, 6700, 6710, 6720, 6730, 6740, 6750, 6760, 6770, 6780, 6790, 6800, 6810, 6820, 6830, 6840, 6850, 6860, 6870, 6880, 6890, 6900, 6910, 6920, 6930, 6940, 6950, 6960, 6970, 6980, 6990, 7000, 7010, 7020, 7030, 7040, 7050, 7060, 7070, 7080, 7090, 7100, 7110, 7120, 7130, 7140, 7150, 7160, 7170, 7180, 7190, 7200, 7210, 7220, 7230, 7240, 7250, 7260, 7270, 7280, 7290, 7300, 7310, 7320, 7330, 7340, 7350, 7360, 7370, 7380, 7390, 7400, 7410, 7420, 7430, 7440, 7450, 7460, 7470, 7480, 7490, 7500, 7510, 7520, 7530, 7540, 7550, 7560, 7570, 7580, 7590, 7600, 7610, 7620, 7630, 7640, 7650, 7660, 7670, 7680, 7690, 7700, 7710, 7720, 7730, 7740, 7750, 7760, 7770, 7780, 7790, 7800, 7810, 7820, 7830, 7840, 7850, 7860, 7870, 7880, 7890, 7900, 7910, 7920, 7930, 7940, 7950, 7960, 7970, 7980, 7990, 8000, 8010, 8020, 8030, 8040, 8050, 8060, 8070, 8080, 8090, 8100, 8110, 8120, 8130, 8140, 8150, 8160, 8170, 8180, 8190, 8200, 8210, 8220, 8230, 8240, 8250, 8260, 8270, 8280, 8290, 8300, 8310, 8320, 8330, 8340, 8350, 8360, 8370, 8380, 8390, 8400, 8410, 8420, 8430, 8440, 8450, 8460,

Cronk & Carrier Mfg. Co.:  
American Butto.....75&100  
Cronk's.....00  
Improving Hickson.....70&105  
Stub's Pattern.....50  
Combination and others.....33&55  
Heller's Farriers' Nippers, Pincers,  
and Tools 40&10&40&10&10  
P., S. & W. Timmers' Cutting Nippers.....30&30105  
Swedish Slide, End and Diagonal Cut-  
ting Pliers.....30  
Utica Forge Forge & Tool Co.:  
Pliers and Nippers, all kinds.....40  
Dieston's Pumps and Levers.....20  
Dieston's Pocket Levels.....70  
C. G. Jennings & Co.'s Iron.....35&105  
C. E. Jennings & Co.'s Iron, Adjustable.....83&105  
Stanley R. & L. Co.....40&40&10&105  
Stanley's Duplex.....20&20&10&105  
Woods' Extension.....33&55

**Poachers, Egg—**  
Buxalo Steam Egg Poachers, # doz.,  
No. 1, \$4.00; No. 2, \$4.00; No. 3,  
\$4.00; No. 4, \$12.00.....50

**Points, Glaziers—**  
Bulk and 1 lb. papers.....lb. 8½¢@..  
1/4-lb. papers.....lb. 9¢@..  
1/4-lb. papers.....lb. 9½¢@..

**Pokes, Animal—**  
Ft. Madison Hawkeye.....# doz. \$3.25  
Ft. Madison Western.....# doz. \$4.00

**Police Goods—**  
**Manufacturers' Lists.....\$5@55&55**  
Tower's.....25

**Pollish—Metal—**  
Prestolite Liquid, No. 1 (½ pt.), # doz.  
\$3.00; No. 2 (1 qt.), \$9.75.....40  
Prestolite Liquid, No. 3 (1 qt.), 40&105  
Joseph William Higgins & Co.  
U. S. Metal Polish Paste, 3 oz. boxes, #  
doz. 50¢; # gr. \$4.50; ½ lb. boxes, #  
doz. \$1.25; 1 lb. boxes, # doz. \$2.25.  
U. S. Liquid, 8 oz. cans, # doz. \$1.25;  
# gr. \$12.00.  
Barnes' Friend Metal Polish, # doz.  
\$1.75; # gr. \$18.00.  
Wynn's White Silk, ½ pt. cans, #  
doz.....\$2.00

**Stove—**  
Black Eagle Benzine Paste, 5 lb cans.....# 10¢  
Black Eagle Liquid, ½ pt. cans, # doz. 75¢  
Black Jack Paste, ¼ lb. boxes, # gr. \$9.00  
Ladies' Black Beauty, # gr. \$10.00.....50  
George's Dixon's, # gr. \$5.75.....105  
Dixon's Plumbago.....# 10¢  
Fireside.....# gr. \$2.50  
Gem, # gr. \$4.50.....10¢  
Japanese.....# gr. \$3.50  
Jet Black.....# gr. \$3.50  
Peerless Iron Enamel, ½ pt. cans.....# doz. \$1.50  
Wynn's:  
Black Silk, 5 lb. pall.....each 70¢  
Black Silk, ½ lb. box.....# doz. \$1.00  
Black Silk, 5 oz. box.....# doz. \$0.75  
Black Silk, ½ pt. liq.....# doz. \$1.00

**Poppers, Corn—**  
1 qt. Square.....gro. \$9.00  
1 qt. Round.....gro. \$10.00  
1½ qt. Square.....gro. 11.00  
2 qt. Square.....gro. 15.00

**Post Hole and Tree Au-  
gurs and Diggers—**  
See also Diggers, Post Hole, &c.

**Posts, Steel—**  
Steel Fence Posts, each, 5 ft., 42¢; 6  
ft., 46¢; 6½ ft., 48¢.  
Steel Hitching Posts, each.....\$1.20

**Potato Parers—**  
See Parers, Potato.

**Pots— Glue—**  
Enameled.....10¢  
Tinned.....50¢

**Powder—**  
In Canisters:  
Duck, 1 lb. each.....150  
Fine Sporting, 1 lb. each.....75¢  
Rifle, ½-lb. each.....150  
Rifle, 1-lb. each.....250  
King's Semi-Smokeless:  
Gr. (25 lb. bulk).....\$0.50  
Half Gr. (12½ lb. bulk).....\$3.50  
Quarter Gr. (6¼ lb. bulk).....\$1.00  
Case 34 (1 lb. cans bulk).....\$9.50  
Half case (1 lb. cans bulk).....\$4.50  
King's Smokeless:  
Gr. (25 lb. bulk).....\$13.00  
Half Gr. (12½ lb. bulk).....6.25  
Quarter Gr. (6¼ lb. bulk).....3.25  
Case 34 (1 lb. cans bulk).....14.00  
Half case (1 lb. cans bulk).....7.25  
Robin Hood Shot Gun.....50&20

**Presses—**  
**Fruit and Jelly—**  
Enterprise Mfg. Co.....\$0&25  
Sensibile.....35¢  
2 qt., \$2.00; 4 qt., \$4.00; 10 qt., \$6.00 each.

**Sea Presses—**  
Morrill's No. 2, per doz. \$20.00.....50  
Morrill's No. 2, per doz. \$22.50.....50

**Pruning Hooks and  
Shears—See Shears.**

**Pullers Nail—**  
Cyclone.....50¢  
Miller's Falls, No. 3, per doz. \$13.00.....33&4105  
Pearson No. 1, Cyclone Spike Puller,  
each \$87.50.....50  
Percan, # doz. \$9.00.....40&105  
Seranton, Case Lots:  
No. 1 (large), # doz. \$6.50; No. 2 (large),  
\$5.50; No. 3 (small), \$5.00; No. 2-B (large),  
\$5.50; No. 3-B (small), \$4.00; No. 2-D  
(large), \$4.50; No. 3-D (small) \$4.00.  
Smith & Hemenway Co.:  
Ajax.....60¢  
Diamond B. No. 2, ea-e lots, # doz. \$6.00  
Diamond B. No. 3, case lots, # doz. \$5.50  
Diamond B. No. 4, case lots, # doz. \$5.00  
Giant, No. 1, # doz. \$18; No. 2, \$16.00;  
No. 2, \$15.....40¢  
Yankee.....60¢





## Sliding Shutter—

Reading list ..... 70¢10¢75¢  
R. & E. list ..... 33¢45¢  
Sargent's list ..... 50¢10¢

## Shells— Shells, Empty—

Bras' Shells, Empty: ..... 60¢5¢  
First quality, all gauges ..... 60¢5¢  
Climax, Club, Rival, 10 and 12 gauges ..... 65¢5¢

## Paper Shells, Empty:

Acme, Ideal, Leader, New Rapid, Magic, 10, 12, 16 and 20 gauge ..... 25¢5¢  
Blue Rival, New Climax, Challenge, Monarch, Defiance, New Victor, Repeat r, Yellow Rival, 10, 12, 15 and 20 gauge ..... 30¢5¢  
Climax, Union, League, New Rival, 10 and 12 gauge ..... 25¢  
Climax, Union, League, New Rival, 14, 16 and 20 gauge (\$7.50 list) ..... 30¢  
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge ..... 33¢45¢  
Robin Hood, Low Brass ..... 30¢10¢  
Robin Hood, High Brass ..... 30¢10¢

## Shells, Loaded—

Loaded with Black Powder ..... 40¢  
Loaded with Smokeless Powder, medium grade ..... 40¢5¢  
Loaded with Smokeless Powder, high grade ..... 40¢10¢10¢  
Robin Hood, Low Brass ..... 50¢  
Robin Hood, High Brass ..... 50¢10¢5¢

## Shoes Horse, Mule, &amp;c.—

F. o. b., Pittsburgh:  
Iron ..... per keg \$3.85  
Steel ..... per keg 3.60  
Burden's, all sizes, per keg ..... \$3.90

## Shot—

Drop, up to B, 25-lb. bag ..... \$1.50  
Drop, B and larger, per 25-lb. bag ..... \$1.75  
Chilled, 25-lb. bag ..... \$1.75  
Dust Shot, 25-lb. bag ..... \$2.00

## Shovels and Spades—

Association List, Nov. 15, 1902 ..... 40¢

## Sieves and Sifters—

Hunter's Imitation, gro. \$11.00 to \$11.50  
Buffalo Metallic Blue, S. S. & Co., per gr.:  
14¢16 16¢18 18¢20  
\$12.90 \$13.80 \$15.00

## National Mfg. Co.:

Victor ..... per gro. \$12.00  
Surprise ..... per gro. \$11.00  
No Name ..... per gro. \$11.00  
Shaker (Barber's Pat.) Flour Sifters ..... \$9.00  
per doz. \$9.00

## Sieves, Tin Rim—

Per dozen:  
Mesh ..... 15 18 20  
Black, full size ..... \$1.20 1.25 1.30 1.35  
Plated, full size ..... \$1.30 1.35 1.40 1.45  
Black, scant ..... \$0.96 1.00 1.05

## Sieves, Wooden Rim—

Nested, 10, 11 and 12 inch:  
Mesh 18, Nested, doz. ..... \$0.65 to \$0.75  
Mesh 20, Nested, doz. ..... 75¢ to .85  
Mesh 24, Nested, doz. ..... 90¢ to 1.00

## Sinks—

## Cast Iron—

Standard list ..... 60¢ to 60¢10¢  
NOTE.—There is not entire uniformity  
list used by jobbers.

## Skeins Wagon—

Cast Iron ..... 70¢ to 70¢10¢  
Malleable Iron ..... 40¢10¢ to 50¢  
Steel ..... 40¢ to 40¢10¢

## Slates, School—

## Factory Shipments.

"D" Slates ..... 45¢  
Noiseless Slates ..... 60¢4 tens 45¢  
Wire Bound ..... 40¢

## Blaw Cutters—See Cutters.

## Slicers, Vegetable—

Sterling No. 10, \$2.00 ..... 33¢

## Snaps, Harness—

German ..... 40¢ to 40¢10¢  
Covert Mfg. Co.:  
Derby ..... 30¢ & 25¢  
High Grade ..... 30¢10¢  
Jockey ..... 30¢10¢  
Trojan ..... 45¢  
Yankee ..... 30¢ & 25¢  
Yankee, Roller ..... 30¢ & 25¢

## Covert's Saddlery Works:

Crown ..... 60¢  
German ..... 60¢  
Model ..... 60¢  
Triumph ..... 60¢  
Onedra Community:  
Solid Steel ..... 60¢ & 5¢  
Solid Swift ..... 60¢  
Sargent's Patent Guarded ..... 60¢ & 10¢

## Snaths—

Scythe ..... 60¢ to 50¢10¢

## Snips, Tinners—See Shears.

## Spoons and Forks—

## Silver Plated—

Good Quality ..... 50¢10¢ to 60¢10¢5¢  
Cheap ..... 40¢ to 60¢10¢  
International Silver Co.:  
1847 Rogers Bros. and Rogers & Hamilton ..... 40¢10¢  
Rogers & Bro., William Rogers Eagle Brand ..... 50¢10¢  
Anchor, Rogers Brand ..... 60¢  
Wm. Rogers & Son ..... 60¢10¢  
Simons L. & Geo. H. Rogers Co.:  
Silver Plated Flat Ware ..... 60¢  
No. 77 Silver Plated Ware ..... 60¢10¢

## Miscellaneous—

German Silver ..... 60¢ to 60¢10¢  
Catawagus Cutlery Co.:  
Yukon Silver ..... 50¢  
Simons L. & Geo. H. Rogers Co.:  
German or Nickel Silver, Special List ..... 1 & 10¢

## Tinned Iron—

Teas ..... per gro. 45¢ to 50¢  
Tables ..... per gro. 90¢ to \$1.00

## Springs— Door—

Gem (Coll.) ..... 20¢  
Star (Coll.) ..... 30¢  
Torrey's Rod, 39 in. ..... \$1.10  
Victor (Coll.) ..... 50¢10¢10¢

## Carriage, Wagon, &amp;c.—

1 1/4 in. and Wider:  
Black or 1/4 Bright, lb. .... 54¢  
Bright, lb. .... 54¢  
Painted Seat Springs:  
1 1/2 x 2 x 28 per pr. .... 50¢ to 55¢  
1 1/2 x 2 x 28 per pr. .... 60¢ to 65¢  
1 1/2 x 3 x 28 and narrower, per pr. .... 80¢ to 85¢

## Sprinklers, Lawn—

Enterprise ..... 25¢ to 29¢  
Mackey ..... \$1.80  
Philadelphia No. 1, per doz. \$12; No. 2, \$15; No. 3, \$24 ..... 30¢

## Squares—

Nickel plated ..... List Jan. 5, 1900.  
Steel and Iron ..... 70¢10¢  
Rosewood Hall Try Square and T-Bevels ..... 60¢10¢10¢ to 70¢  
Iron Hall Try Squares and T-Bevels ..... 40¢10¢10¢ to 40¢

Diston's Try Sq. and T-Bevels ..... 70¢  
Winterbottom's Try and Miter ..... 40¢10¢40¢ to 10¢10¢

## Squeezers— Lemon—

Wood, Common, gro. No. 0, \$5.25 to \$5.50; No. 1, \$5.25 to \$5.50.  
Wood, Porcelain Lined:  
Cheap ..... doz. \$2.00 to \$2.75  
Good Grade ..... doz. \$3.00 to \$5.50  
Tinned Iron ..... doz. \$0.75 to \$1.25  
Iron, Porcelain Lined doz. \$2.50 to \$3.25

## Staples—

Barbed Blind ..... lb. 6¢ to 6¢4¢  
Electricians', Association list ..... 80¢10¢10¢ to 10¢

Fence Staples, See Trade Report.  
Galvanized, 1c less than Barb Wire  
Polished. 20c less than Barb Wire  
Poultry Netting, Staples ..... per lb. 3 1/4¢ to 3 1/2¢

Grand Crossing Tack Co.'s list ..... 80¢10¢

## Steels, Butchers—

Dick's ..... 30¢  
Foster Blade ..... 30¢  
Hartzell Cutlery Co. .... 40¢5¢  
C. & A. Hoffmann's ..... 40¢

## Steelyards ..... 25¢10¢ to 30¢10¢

## Stocks and Dies—

Blacksmiths' ..... 10¢10¢ to 50¢  
Curtis Reversible Ratchet Die Stock ..... 25¢  
Derby Screw Plates ..... 25¢  
Gardner Die Stocks No. 1 ..... 50¢  
Gardner Die Stocks, larger sizes ..... 40¢  
Green River ..... 25¢  
Lightning Screw Plate ..... 25¢  
Little Giant ..... 25¢  
Reece's New Screw Plates ..... 25¢ to 30¢

## Stone—

## Scythe Stones—

Chicago Wheel & Mfg. Co.:  
Gem Corundum, 70 inch, \$5.00 per gro., 12 inch, \$10.00  
Pike Mfg. Co. 1901 list:  
Black Diamond S. S. .... per gro. \$12.00  
Lamotte S. S. .... per gro. \$11.00  
White Mountain S. S. .... per gro. \$9.00  
Green Mountain S. S. .... per gro. \$6.00  
Extra Indian Pond S. S. .... per gro. \$7.50  
No. 1 Indian Pond S. S. .... per gro. \$7.00  
No. 2 Indian Pond S. S. .... per gro. \$4.50  
Leader red End S. S. .... per gro. \$4.50  
Balance of 1901 list 33¢

## Oil Stones, &amp;c.—

Chicago Wheel & Mfg. Co. 1901 list:  
Gem Corundum Oil, Double Grind ..... 50¢  
Gem Corundum Oil, Single or Double Grind ..... 50¢  
Gem Corundum Slips ..... 50¢  
Gem Corundum Razor Hones ..... 50¢  
Pike Mfg. Co. 1901 list:  
Arkansas Stone, No. 1, 3 to 5 in. .... \$2.50  
Arkansas Stone, No. 1, 5 to 8 in. .... \$3.50  
Arkansas Stone, No. 1, 8 to 10 in. .... \$4.00  
Lily White Washita, 4 to 8 in. .... 60¢  
Rosa Red Washita, 4 to 8 in. .... 60¢  
Washita Stone, Extra, 4 to 8 in. .... 50¢  
Washita Stone, No. 1, 4 to 8 in. .... 40¢  
Washita Stone, No. 2, 4 to 8 in. .... 30¢  
Lily White Slips ..... 90¢  
Rosa Red Slips ..... 90¢  
Washita Slips, Extra ..... 60¢  
Washita Slips, No. 1 ..... 70¢  
India Oil Stones (entire list) ..... 3 1/2¢  
Hindustan No. 1, Regular ..... 10¢  
Hindustan No. 1, Small ..... 10¢  
Axe Stones (all kinds) ..... 50¢  
Turkey Oil Stones, ex. 5 to 10 in. .... 50¢  
Queer Creek Stones, 4 to 8 in. .... 30¢  
Queer Creek Slips ..... 40¢  
Sand Stone ..... 5¢  
Belgian, German and Swaty Razor Hones ..... 50¢  
Natural Grit Carving Knife Hones ..... 40¢  
Quick Edge Pocket Knife Hones ..... 40¢  
Mounted Kitchen Sand Stone ..... 1.50

## Stoners— Cherry—

Enterprise ..... 25¢ to 30¢

## Stops Bench—

Millers Falls ..... 15¢10¢  
Morrill's ..... per doz. No. 1, \$10.00; No. 2, \$12.50 ..... 50¢

## Straps— Box—

Cary's Universal, case lots ..... 20¢10¢

## Hame—

Covert's Saddlery Works ..... 60¢10¢

## Stretchers, Carpet—

Cast Iron, Steel Points ..... doz. 55¢ to 60¢  
Socket ..... doz. \$1.75

## Stuffers Sausage—

Enterprise Mfg. Co. .... 25¢ to 25¢7 1/2¢  
National Specialty Mfg. Co. list Jan. 1, '97 ..... 30¢

## Supports, Porch—

Hoffman's Porch Supports ..... doz. 25¢

## Sweepers, Carpet—

National Sweeper Co.:  
Marion, Roller Bearing, regular ..... \$24.00  
Marion Queen, Roller Bearing, Fancy Veneer, full Nickel ..... \$27.00  
Monarch, Roller Bearing, Nickel ..... \$22.00  
Monarch, Roller Bearing, Jap'ned ..... \$24.00  
Marion Queen, Roller Bearing, Regular Finishes, full Nickel ..... \$34.00  
Transparent, Roller Bearing, Plate Glass Top, Nickel ..... \$32.00  
Monarch Extra, Roller Bearing, (17-inch case), Nickel ..... \$36.00  
Monarch Extra, Roller Bearing (17-inch case), Japanned ..... \$38.00  
Perpetual, Regular Bearings, Nickel ..... \$24.00  
Perpetual, Regular Bearings, Japanned ..... \$24.00  
None Discount of 30¢ per dozen on three dozen lots. Discount of 1¢ per dozen on five dozen lots.

## Tacks Brads, &amp;c.—

List Jan. 15, '99.

## Carpet Tacks, American ..... 90¢ to 90¢5¢

## American Cut Tacks, 90¢ to 90¢5¢

## Sweeds Iron Tacks, 90¢ to 90¢5¢

## Sweeds Upholsterers' Tacks ..... 90¢ to 90¢5¢

## Gimp Tacks ..... 90¢ to 90¢5¢

## Lace Tacks ..... 90¢ to 90¢5¢

## Trimmers' Tacks, 90¢ to 90¢5¢

## Looking Glass Tacks ..... 70¢ to 70¢10¢

## Bill Posters' and Railroad Tack ..... 90¢ to 90¢5¢

## Hungarian Nails ..... 80¢ to 80¢5¢

## Common and Patent Brads ..... 80¢ to 80¢10¢

## Trunk and Clout Nails ..... 80¢ to 80¢5¢

## NOTE.—The above prices are for Straight Weights. An extra 1/2¢ is given Star Weights and an extra 10¢ on Standard Weights.

## Miscellaneous—

## Double Point Tacks ..... 90 and 5 tens

## Steel Wire Brads, R. &amp; E. Mfg. Co.'s list ..... 50¢ to 10¢60¢

## See also Nails, Wire.

## Tanks, Oil—

Emerald, S. S. & Co. .... 30-gal. \$3.40  
Emerald, S. S. & Co. .... 60-gal. \$4.25  
Queen City S. S. & Co., 80-gal. .... \$3.65  
Queen City S. S. & Co., 60-gal. .... \$4.50

## Tapes Measuring—

## American Asses' Skin ..... 40¢ to 40¢10¢

## Patent Leather ..... 25¢ to 25¢5¢

## Steel ..... 10¢ to 10¢5¢

## Chesterman's ..... 25¢ to 25¢5¢

Keuffel & Esser Co. Steel and Metallic:  
Lower list, 1899 ..... 35¢

## Lufkin's Steel ..... 33¢ to 35¢

## Lufkin's Metallic ..... 30¢ to 30¢5¢

## Teeth Harrow—

Steel Harrow Teeth, plain or headed,  
5/8 inch and larger, per 100 lbs. \$3.00

## Thermometers—

Tin Case ..... 80¢ to 10¢80¢10¢5¢

## Ties, Bale—Steel Wire.

Single Loop ..... 80¢ to 80¢10¢

Improved, Monitor, Cross Head,  
Etc. .... 70¢

## Ties, Wall—

Cleveland Wire Spring Co.:  
Galv. steel 5-32 x 6 1/2 in. per 1000, \$10.00  
Galv. steel 5-32 x 8 1/2 in. per 1000, \$11.00  
Galv. steel 5-32 x 11 1/2 in. per 1000, \$12.00  
Galv. steel 5-32 x 15 1/2 in. per 1000, \$14.00

## Tinners' Shears, &amp;c.—

See Shears, Tinners', &c.

## Tinware—

Stamped, Japanned and Plated, sold  
very generally at net prices.

## Ties, Safety Pole—

Covert's Saddlery Works ..... 60¢10¢

## Tire Benders, Upsetters, &amp;c.—See Benders and Upsetters. Tire.

## Tools—Coopers—

L. & J. White ..... 20¢ to 20¢5¢

## Hay—

Myers' Hay Tools ..... 50¢

## Saw—

Atkins' Cross Cut Saw Tools ..... 40¢

Simonds' Improved ..... 33¢4¢

Simonds' Crescent ..... 25¢

## Ship—

L. & J. White ..... 25¢

## Transom Lifters—

See Lifters, Transom.

## Traps—Fly—

Balloon, Globe or Acme ..... doz. \$1.15 to 1.25; grn. \$1.50 to 1.60

Harper, Champion or Paragon ..... doz. \$1.25 to 1.40; gro. \$1.50 to 1.50

## Game—

Oneida Pattern ..... 80¢ to 80¢5¢

Newhouse ..... 45¢ to 45¢5¢

Hawley & Norton ..... 65¢ to 65¢10¢

Victor (Oneida Pattern) ..... 75¢ to 75¢5¢

Star (Blake Pattern) ..... 60¢ to 60¢10¢

## Mouse and Rat—

Mouse, Wood, Choker, doz. holes ..... 5¢ to 9¢

Mouse, Round or Square Wire ..... doz. 85¢ to 90¢

Marty French Rat and Mouse Traps (Genuine):  
No. 1, Rat, Each \$1.19; per doz. \$12.00  
No. 3, Rat, per doz. \$6.00; case of 50 ..... \$5.25 doz.

No. 3 1/2, Rat, per doz. \$4.75; case of 72 ..... \$4.25 doz.

No. 4, Mouse, per doz. \$3.50; case of 7 ..... \$4.75 doz.

No. 5, Mouse, per doz. \$3.75; case of 150 ..... \$2.25

Schuyler's Rat Killer, No. 1, (per \$30.00)

No. 2, per gr. \$30.00; Mouse, No. 3, \$18.00

J. M. Mast Mfg. Co.:  
Blizzard ..... No. 12, \$8.20 No. 1, \$9.50  
Old Nick ..... No. 30, 2.22 No. 1, 8.40  
Joker ..... No. 5, 2.10 No. 3, 8.40  
Imp'd Snap Shot, Mouse, per gro. 4 hole, \$2.40  
Imp'd Snap Shot, Mouse, per gro. 4 hole, \$4.20

## Trimmers Spoke—

Bonney's Nos. 1 and 2 ..... 40¢  
Wood's F. I. .... 30¢

## Trowels—

Diston Brick and Pointing ..... 30¢

Diston Plastering ..... 25¢

Diston "Standard Brand" and Garden Trowels ..... 30¢

Kohler's Steel Garden Trowels, 5 in. ..... 30¢

Kohler's Steel Garden Trowels, 6 in. ..... 30¢

Never-Break Steel Garden Trowels ..... 30¢

Peace's Plastering ..... 30¢

Reese Brick and Plastering ..... 25¢

Woodrough & Morrell's ..... 30¢

## Trucks, Warehouse, &amp;c.—

New York Pattern ..... 50¢ to 10¢

Western Pattern ..... 50¢ to 10¢

Handy Trucks ..... per doz. \$16.00

Day's Store Trucks, Improved pattern ..... per doz. \$15.00

Model Store Trucks ..... per doz. \$18.50

## Tubs, Wash—

No. 1 2 3

Galvanized, per doz. \$4.75 5.25 6.00

Galvanized Wash Tubs (S. S. & Co.):  
No. 1 2 3 10 20 30

Per doz. \$5.25 6.00 6.75 6.50 7.00 7.00

## Twine—Miscellaneous—

Flax Twine ..... 80¢ B.

No. 9, 1/4 and 1/2 lb. Balls 2 1/2¢ 2 1/2¢

No. 12, 1/4 and 1/2 lb. Balls 17¢ 17¢

No. 13, 1/4 and 1/2 lb. Balls 15¢ 15¢



**Ware Hollow—****Cast Iron, Hollow—**

Stove Hollow Ware:	
Ground.....	60%
Ungrained.....	65%
White Enamelled Ware:	
Maslin Kettles.....	70%
Covered Ware:	
Tinned and Turned.....	40%
Enamelled.....	50%
See also Pots Glue.	

**Enamelled—**

Agate Nickel Steel Ware, list Nov. 1,	
01.....	30&35
Iron Clad Ware.....	70&105
Lava, Enamelled.....	40&105
Never Break Enamelled.....	50&

**Tea Kettles—**

Galvanized Tea Kettles:	
Inch.....	6 7 8 9
Each.....	50c 60c 70c 85c

**Steel Hollow Ware.**

Avery Spiders & Griddles.....	55&55
Avery Kettles.....	90%
Porcelain.....	50&50&105
Never Break Spiders and Griddles.....	65&55
Never Break Kettles.....	60%
Solid Steel Spiders & Griddles.....	45&55
Solid Steel Kettles.....	60%

**Warmers, Foot—**

Pike Trg. Co., Soapstone.....	40&40&105
-------------------------------	-----------

**Washboards—**

Solid Zinc:	
Crescent, family size, bent frame.....	\$3.00
Red Star, family size, stationary	
protector.....	\$3.00
Double Zinc Surface:	
Saginaw Globe, family size, station-	
ary protector.....	\$2.65
Cable Cross, family size, stationary	
protector.....	\$2.40
Single Zinc Surface:	
Nalad, family size, open back perfo-	
rated.....	\$2.40

Saginaw Globe, protector, family	
size, ventilated back.....	\$2.25
Bras Surface:	
Brass King, Single Surface, open	
back.....	\$3.00
Nickel Plate Surface:	
No. 1001 Nickel Plate, Single Surface	
.....	\$3.00

**Washers—****Leather, Axle—**

Solid.....	85¢ 10¢ 10¢ 85¢ 10¢ 10¢ 10¢
Patent.....	85¢ 10¢ 10¢ 85¢ 10¢ 10¢ 10¢
Coil:	3/4 1 1 1/4 1 1/2 1 3/4
	9c 10c 11c 13c per 100

**Iron or Steel—**

Size bolt.....	5-16 3/4 1/2 3/4 1 1/2
Washers.....	\$0.80 5.30 1.40 1.40 1.40
In lots less than one keg add 1/4c per	
lb., 5-lb. boxes add 1/4c to list.	

**Cast Washers—**

Over 1/2 inch, barrel lots, per lb.....	13¢@2c
---	--------

**Wedges—**

Oil Finish.....	lb. 2.90@3.10c
-----------------	----------------

**Weights—**

Covert's Saddlery Works.....	60&105
------------------------------	--------

**Hitching—**

Per ton, f.o.b. factory:	
Eastern District.....	\$26.00
Western, Central and Southern	
Districts.....	\$27.00

**Sash—**

Per ton, f.o.b. factory:	
Eastern District.....	\$26.00
Western, Central and Southern	
Districts.....	\$27.00

**Wheels, Well—**

8-in., \$1.10 @ 1.30 10-in., \$2.00 @ 2.25;	
12-in., \$2.15 @ 2.45 14-in., \$4.00 @ 4.25	

**Wire and Wire Goods—**

Bright and Annealed:	
6 to 9.....	12 1/2¢ 15¢ 17 1/2¢ 10¢
10 to 18.....	7 1/2¢ 10¢ 12 1/2¢ 10¢ 15¢
19 to 26.....	7 1/2¢ 10¢ 12 1/2¢ 10¢ 15¢
27 to 36.....	7 1/2¢ 10¢ 12 1/2¢ 10¢ 15¢

**Galvanized:**

6 to 18.....	70¢ 70¢ 70¢
19 to 26.....	7 1/2¢ 10¢ 12 1/2¢ 10¢
27 to 36.....	7 1/2¢ 10¢ 12 1/2¢ 10¢

**Coppered:**

6 to 9.....	70¢ 70¢ 70¢
10 to 18.....	70¢ 10¢ 70¢ 10¢
19 to 26.....	75¢ 10¢ 75¢ 10¢
27 to 36.....	75¢ 10¢ 75¢ 10¢

**Tinned:**

6 to 18.....	75¢ 75¢ 75¢
15 to 18.....	72¢ 72¢ 72¢
19 to 26.....	70¢ 70¢ 70¢
27 to 36.....	70¢ 70¢ 70¢

**Annealed Wire on Spools—**

Brass and Copper Wire on Spools.....	60¢@50¢
--------------------------------------	---------

**Brass, list Feb. 26, '96.....**

Copper, list Feb. 26, '96.....	15%
--------------------------------	-----

**Cast Steel Wire.....**

Stub's Steel Wire.....	\$6.00 to \$2.40
------------------------	------------------

**Wire Cloth and Netting—**

Galvanized Wire Netting.....	80¢ 10¢ 80¢ 10¢
------------------------------	-----------------

**Bright Wire Goods—**

List April 1, 1901.....	85¢ 10¢ 10¢ 90%
-------------------------	-----------------

**Wire Cloth and Netting—**

Galvanized Wire Netting.....	80¢ 10¢ 80¢ 10¢
------------------------------	-----------------

**Painted Screen Cloth per 100 ft.....**

Light Hardware Grade.....	\$1.10@1.15
---------------------------	-------------

**2-3 Mesh, Plain (8c. list) sq. ft.....**

2-3 Mesh, Galv. (8c. list) sq. ft.....	14¢@2c
--	--------

**Wire, Barb—See Trade Report.****Wrenches—**

Agricultural.....	75¢@75¢ 10¢ 5%
-------------------	----------------

**Baxter Pat'n S Wrenches.....**

Drop Forged S.....	70¢@70¢ 10%
--------------------	-------------

**Acme.....**

Alligator.....	60¢@105
----------------	---------

**Aligator Pattern.....**

Bull Dog.....	70%
---------------	-----

**Bemis & Call's.....**

Adjustable S.....	35&55
Adjustable S Pipe.....	40%
Brigg's Pattern.....	30&105
Combination Black.....	40&55
Combination Bright.....	40%
Cylinder or Gas Pipe.....	55%
Extra Heavy.....	50%
Merriek's Eastern.....	55%
No. 3 Pipe, Bright.....	35%

**Boardman's.....**

Coe's Genuine.....	40&105&55
--------------------	-----------

**Coe's "Mechanics".....**

Donohue's Engineer.....	40&105
-------------------------	--------

**Duffy Auto.....**

Eagle.....	50&105
------------	--------

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**Elgin Wrenches.....**

Elgin Wrenches.....	40%
---------------------	-----

**PAINTS, OILS AND COLORS—Wholesale Prices.****White Lead, Zinc, &c.**

Lead, Engl sn white, in Oil.....	7 @ 9%
Lead, American White, in Oil:	
Lots of 500 lb or over.....	@ 6%
Lots less than 500 lb.....	@ 7%
Lead, White, in oil, 25 lb tin	
pails, add to keg price.....	@ 1/4
Lead, White, in oil, 12 1/2 lb tin	
pails, add to keg price.....	@ 1
Lead, White, in oil, 1 to 5 lb as	
sorted tins, add to keg price.....	@ 1 1/4
Lead, American, Terms: For lots 12 tons	
and over 1/2 rebate; and 2% f r cash	
if paid in 15 days from date of invoice;	
for lots of 500 lbs. and over 2% for cash	
if paid in 15 days from date of invoice;	
for lots of less than 500 lbs. net.	

**Lead, White, Dry in bbls.....**

Zinc, American, dry.....	5 1/2 @ 6 1/4
--------------------------	---------------

**Zinc, Paris, Red Seal, dry.....**

Zinc, Paris, Green Seal, dry.....	@ 4 1/4
-----------------------------------	---------

**Zinc, Paris, Green Seal, dry.....**

Zinc, Antwerp, Red Seal, dry.....	@ 7 1/2
-----------------------------------	---------

**Zinc, Antwerp, Green Seal, dry.....**

Zinc, V. M. French, in Poppy Oil,	
-----------------------------------	--

**Green Seal.....**

Lots of 1 ton and over.....	12 @ 12 1/4
-----------------------------	-------------

**Lots of less than 1 ton.....**

Zinc, V. M. French, in Poppy Oil,	
-----------------------------------	--

**Red**

